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THE

AMERICAN YEAR-BOOK

OF

MEDICINE AND SURGERY

BEING

A Yearly Digest of Scientific Progress and Authoritative
Opinion in all Branches of Medicine and Surgery,
drawn from Journals, Monographs, and Text-
Books, of the Leading American and Foreign
Authors and Investigators

COLLECTED AND ARRANGED

WITH CRITICAL EDITORIAL COMMENTS

BY

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UNDER THE GENERAL EDITORIAL CHARGE OF

GEORGE M. GOULD, M. D.

SURGERY

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PREFACE.

SINCE issuing the YEAR-BOOK for 1899 editorial changes have been made in three departments: Dr. David Riesman has kindly consented to take entire charge of the section on Pathology, the removal of Dr. Guitéras to Havana rendering necessary his resignation as one of the editors of this department. Owing to pressure of other duties Drs. Griffin and Tillinghast have been compelled to give up the department of Materia Medica, Experimental Therapeutics, and Pharmacology. Subscribers are congratulated upon securing Dr. Reynold W. Wilcox of New York and Dr. A. A. Stevens of Philadelphia as editors. Professor Abel has also found it impossible to continue editing the section on Physiologic Chemistry, and has suggested the engagement of Dr. Reid Hunt and Dr. Walter Jones of the Johns Hopkins Medical School, and these gentlemen have accepted the appointment.

In order to make the work less tiresome to hold in reading, as well as for the convenience of specialists, the publisher has consented to issue it in two volumes, a plan that I think will be commended by all subscribers.

GEORGE M. GOULD.

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GENERAL SURGERY.

BY W. W. KEEN, M. D., AND J. CHALMERS DACOSTA, M. D.,

OF PHILADELPHIA.

ASEPSIS AND ANTISEPSIS.

W. Huebener[1] considers the possibility of infecting wounds from the mouth of the surgeon and the prevention of such infection by **the use of a face-mask.** He maintains that the mouth forms a breeding-place for all varieties of microorganisms, and he quotes Flügge as stating that liquids containing spores might be carried in small drops of saliva or nasal secretion over a considerable area by currents of air. He also shows that speaking, coughing, and sneezing project fine drops from the nose and mouth to a distance of several meters. This means of infection is held to be decidedly important, and the author maintains that the use of a mask entirely prevents it.

Cohn[2] has made some experiments to show the value of **wound-cauterization to prevent infection.** His experiments indicate that cauterization destroys infective organisms. The experiments seem definitely to prove the value of the ancient custom of cauterizing the bites of rabid animals. [If a wound is cauterized, a crust forms over it. This crust, by excluding air, favors the development of tetanus-bacilli. Ordinary cauterizing agents do not destroy the spores of tetanus. Hence, if we wish to cauterize a wound we should use bromin, or employ iodin, which destroys tetanus-bacilli, before using the cauterizing agent.]

The value of **bacteriologic examination** before, during, and after **surgical operations** is discussed by W. S. Melsome.[3] He says that it is surprising how little the microscope is used by the practical surgeon. He urges that it is necessary for the surgeon to discriminate between different kinds of microorganisms and to decide whether or not microorganisms are present in the structures with which he is about to deal. If by this means we obtain information of such value as at one time to show the necessity of immediate action, and at another time the desirability of postponing operation, we cannot ignore the suggestion. He then cites some instructive cases to prove the importance of this method. In a case of difficulty with the knee-joint, in which a number of practical surgeons insisted that amputation was necessary, on withdrawing some fluid from the joint and making cover-slip preparations, it became evident that the disease was due to gonococci and that amputation was not necessary. In dealing with the urinary organs the presence or absence of microorganisms is of great importance. Catheter-fever is due to microorganisms from unhealthy urine which invade the tissues. It is therefore of great importance to know before performing an operation on the urethra or bladder if microorganisms be present in the urine. Because the urine is acid, free from albumin and offensive smell, is by no means a proof that it is free from microorganisms. Microscopic examination during operations is often of value. The tendency today is to remove chronic abscesses, which we believe are produced by the Bacillus tuberculosis, by means of dissection. When this is impossible we usually evacuate the contents, remove as much as possible of the lining membrane, suture the skin-wound, and attempt to obtain primary union. The attempt to obtain primary union is often unsuccessful, apparently, because we do not sufficiently discriminate between different forms of chronic abscess. Every chronic abscess is not tuberculous. Many contain the ordinary organisms of suppuration. It is not unusual for a surgeon to open a chronic abscess connected with the glands of the neck, scrape the limiting membrane, and suture the skin; and yet an examination of the pus from such abscesses at the time of operation may show that pus-cocci are present, and when we find pus-cocci present we can predict with certainty that primary union will not be obtained. It is not uncommon to meet with chronic abscesses due to organisms other than the tubercle-bacilli, but it is often impossible to distinguish them without the use of the microscope. If on microscopic examination no organisms are found in the pus, it is justifiable to try to obtain primary union; not otherwise. If in operating upon a strangulated hernia we find that the sac contains blood-stained fluid, this fluid should be examined to see if it contains the Bacillus coli communis. If it does contain this bacterium, we may be sure that the wall of the strangulated intestine has to a considerable extent lost its vitality. Under these circumstances the sac should be cleansed and dried before the abdomen is opened. The abdominal viscera in the neighborhood should be disturbed as little as possible during the process of reduction and the strangulated piece of intestine should be left just within the ring, separated by a gauze plug, which acts also as a drain. The value of the microscope after operations is generally recognized. When we have an injury—for instance, a compound fracture—and febrile symptoms appear a day or so afterward, it is highly important to know if the wound is free from infection. In order to determine this the sterile probe should be passed into the deeper portion of the wound, fluid obtained, and cover-glass preparations made. If no organisms are discovered, we may be sure that the wound is not infected. The author states that he is aware that micrococci have frequently been found by cultivation-methods in many wounds that run an aseptic course; but under these circumstances bacteria are not sufficiently numerous to be easily detected by direct microscopic examination. In septic wounds they may be readily detected by such methods within 24 hours of the onset of the infection.

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[1] Zeit. f. Hyg. u. Infectionskr., Sept., 1898.

[2] Med. Presse, Oct. 5, 1898.

[3] Brit. Med. Jour., Oct. 30, 1898.

F. A. Sherrer[1] has been impressed by the statements of Halsted and others as to the **antiseptic properties of silver,** but feels that silver wire is an objectionable material. He seeks to obtain the antiseptic value of silver by treating silk in the following manner: The silk is wound around a glass microscope-slide and is boiled for 5 minutes in a dilute solution of sodium bicarbonate. It is washed in running water for half an hour to remove all the soda. It is boiled for 5 minutes in a strong solution of silver nitrate, and is then placed for 5 minutes in a dilute boiling solution of sodium bicarbonate. The sodium bicarbonate precipitates metallic silver upon the silk and the silk becomes colored a deep brown. The silk is now washed for half an hour in running water and dried. To **sterilize** such **argentized silk,** it is only necessary to boil it; neither the process nor the boiling rots the silk. A strand of such silk placed in a culture of colon-bacilli retarded their growth for an area of $\frac{1}{8}$ in. around.

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[1] Phila. Med. Jour., Oct. 1, 1898.

Lockett[1] has made a series of experiments to determine the **usefulness of gloves in surgery.** His experiments seem to prove positively that the cotton glove, paraffined or unparaffined, is useless, and that rubber gloves are the only kind that are efficient. Of course, the hands must be sterilized before using rubber gloves, because the glove may be torn or punctured during the operation, which opening would, if the hands were not clean, admit infective material to the wound. The rubber gloves are not permeable to germs, and in view of the fact that they can be boiled, it is possible to render them absolutely free from germs. [The use of gloves at first somewhat embarrasses the surgeon, but after a little practice they do not interfere to any marked degree with surgical manipulations. Some surgeons (Friedreich and others) employ gloves in certain cases only, because they believe that they hinder the operator, blunt his tactile perception, and complicate the technic. Persons holding this view recommend the use of gloves when the surgeon or an assistant has an unhealed wound on his hand or fingers which a rubber finger will not cover. McBurney believes in the gloves. We are persuaded that gloves are a safeguard against infection because, as has been shown, the skin is rarely absolutely sterile; and even if it is so at the beginning of an operation, it becomes infected before its close, infective material being squeezed out of the sweat-glands, sebaceous glands, and hair-follicles, or set free by rubbing off epithelium. Cotton gloves we regard as practically useless, and rubber gloves are the only variety fit to employ. The surgeon should endeavor to keep his hands from becoming seriously infected during his ordinary duties, and thus have them more certainly clean when he comes to operate. He can accomplish this by wearing gloves when he examines the vagina, the mouth, or the rectum; and he should always wear them when operating on an infected case. Thus it is seen that gloves not only protect the patient, but also the surgeon. Before using the gloves they should be washed with soap and water containing ammonia, and be boiled for 30 minutes in a 1% solution of soda. Good gloves can be boiled at least 20 times, if they are handled properly. It saves the glove if it is boiled for a shorter period; for instance, boil it for 5 minutes to kill adult organisms, wrap in a sterile towel, and in 12 to 24 hours boil it again. This will destroy spores as well as organisms and harm the gloves less than boiling for 30 minutes. The glove is kept wrapped in a sterile towel until wanted. The best way to put on the glove is to have the hand and glove dry and the interior of the glove dusted with sterile talc; it can then be drawn on easily; but it is better to fold forward the wrist-part of the glove, and while a nurse holds it open insert the hand by force. If the glove is filled with a sterile solution, the hand can be introduced in it without trouble. The fingers of the glove must be stretched tightly over the fingers of the hand in order to secure good tactile perception. It is well to take a plaster cast of the hand and have gloves made to fit. In a short operation one pair of gloves is enough; but in a prolonged operation they should be changed at least once. If a glove is punctured or if it becomes contaminated (by pus, feces, etc.), it should be changed. The hands should be cleansed with equal care whether the surgeon intends to wear gloves or not.] Theodore Kocher, in his paper read at the last meeting of the American Surgical Association, in Chicago, discusses primary wound-healing, and says: "1. Either, do use sterilized rubber gloves for every operation when you wish to be quite independent as to the form of your nails, the touching of everything you like, and the liberty to wash or not wash your hands, and when you can spend plenty of money. Put your covered hand, from time to time, in a strong antiseptic solution (best 2% sublimate) during a long operation, if you wish to be very careful. 2. Or, never wear gloves for operations; do what you like between your operations, but poison yourself every time before you operate, by brushing and bathing your hands for 10 minutes in a strong, hot sublimate solution, after thorough washing and cleansing with hot water, soap, and alcohol for 15 minutes. Repeat a short antiseptic ablution frequently when you wish to be very careful. 3. Or, go the golden middle way; avoid touching with uncovered hands any infective or septic material between the operations, or wash carefully away at once; cut your nails as short as possible; brush your hands thoroughly with hot water, soap, and alcohol (85% to 95%), avoiding any poisonous disinfectant before you operate, and, if you wish to be very careful, put cotton, silk, or, best, rubber gloves on when you touch the threads for ligatures and sutures and when you have to tear the tissues and to rub your fingers in the depth of a wound. 4. But do not forget that the healing of the wounds *per primam intentionem* does not depend exclusively on your hands, but also upon the same preparation of the patient's skin, upon sterilization of everything coming in contact with the wound and its surroundings, upon complete arrest of bleeding, exact closing of the wound by sutures, and avoiding accumulation of fluids in cavities necessarily left by drainage, and last, upon the use of antiseptic threads for ligatures and sutures."

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[1] Phila. Med. Jour., Feb. 11, 1899.

Dawbarn[1] discusses the different methods of **preserving surgical needles.** He considers that they are best kept in a saturated watery solution of washing-soda. When so kept they do not tarnish and are not dulled. The usual method of keeping needles is to sew them in oiled cloth; but needles so kept will show rust. If kept in carbolized oil, the needles are dulled. Lysol is dark in color, and needles kept in it cannot be well seen. If needles are kept in a closed place with calcium chlorid, they tarnish in a curious manner. If kept in fullers' earth or other powders, it is difficult to find the smaller needles. If kept in alcohol, they will not rust—that is, if kept in absolute alcohol; but even absolute alcohol soon ceases to be absolute, and in such solution needles do rust. If kept in a solution of borax, the needles will rust as soon as the plating becomes worn from use exposing the steel. Needles may be kept very well in albolene, or in absolute alcohol containing calcium chlorid, or in absolute alcohol containing a sheet of gelatin; but the **washing-soda** method is inexpensive and entirely reliable.

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[1] Ann. of Surg., Feb., 1899.

Oscar Werler[1] believes in the value of **metallic silver preparations in the treatment of infected wounds.** He asserts that metallic silver in the fluid combination changes when in the body into an antiseptic salt. Silver can be used in the form of an ointment, which is rubbed into the skin in order to produce a constitutional influence, and a 1 : 4000 solution of silver citrate can be applied to the wound. He considers this internal action of silver as extremely valuable, both in acute and chronic sepsis and in furunculosis; and he says the most powerful action can be obtained by the use of a soluble ointment of silver applied by inunction, which carries the remedy into the circulation, where it develops silver salts of germicidal power, which in a manner disinfect the entire organism. The ointment usually contains 15% of soluble silver.

William S. Bainbridge[2] discusses **silver and silver salts in surgery** with especial relation to wound-treatment. After giving the history of the silver treatment suggested by Credé of Hamburg, he reviews the preparations which are employed and the methods which are used: 1. Pure metallic silver, which is nonirritating and distinctly germicidal. In Dresden metallic silver is used as a partial coating to court-plasters. 2. A solution of metallic silver in distilled water, a nonirritating and nontoxic fluid. Silver gauze is prepared by soaking ordinary muslin in a strong solution of metallic silver. 3. Silver lactate, a white, odorless powder which can be kept unchanged in a dark bottle. One part of this is soluble in 15 parts of water or albuminous fluid. In a strength of 1: 1000 it kills streptococci and staphylococci in 5 minutes. Credé prepares his catgut, after cleansing it in the ordinary way, by soaking it for a week in a 1 : 200 solution of silver lactate, drying it, and placing it in alcohol. He prepares silver sutures and rubber drainage-tubes in the same way. 4. Silver citrate, a light, colorless, nonirritating antiseptic powder; it is less soluble in water than is silver lactate. An aqueous solution of the strength of 1 : 4000 will kill all ordinary germs in 10 minutes. This solution is used for irrigating wounds and cavities. Among other preparations of silver we may mention ointment of metallic silver and ointment of silver citrate. Wounds are dusted often with the powdered silver citrate, and are sutured with silver catgut or silvered silk. A strip of silver gauze is laid over the wound and a strip of ordinary gauze over this. [There is another side as to the value of these silver preparations. Galin has recently tested them, and does not find them very efficient. He says the serous flow is increased, or at least the dressings soon soak through, the wound-edges remain inflamed longer than in wounds otherwise healed, and granulations do not actively form. He concludes that Credé's dressings retard the spread of a septic process, but also delay healing, and should only be used when a septic process spreads in spite of free incision and antiseptic treatment. Wolfram, however, has recently spoken very highly of silver citrate and lactate when applied to wounds, and of soluble metallic silver in blood-poisoning. The soluble silver can be used as colloidal silver in solution, or better in salve. The ointment is rubbed in once a day or oftener in a healthy part. About 45 gr. of the ointment is rubbed in for 25 minutes.]

[1] Am. Jour. Med. Sci., Jan., 1899.

[2] Med. Rec., Oct. 15, 1898.

ERYSIPELAS, TETANUS, ETC.

Theodore Zangger[1] writes on the **treatment of various inflammatory processes by the application of alcohol.** The treatment was originally suggested in 1896 by Salzwedel. It is used in whitlow, lymphangitis, phlegmon, incipient abscess, etc. In many instances it will cause an inflammatory process to disappear in 48 hours; and even in cases in which suppuration is inevitable, the abscess is localized and the time of healing is shortened. It is believed that alcohol vapor enters into the lymphatics of the skin and indirectly disinfects the tissue. The application is made in the following manner: The inflamed part is scrubbed with soap and water and then with ether, is dried and covered with a thin layer of gauze to prevent the cotton adhering to the skin. A layer of cotton-wool $\frac{1}{2}$ to $\frac{3}{4}$ in. in thickness is fastened upon the part by means of a gauze bandage, the cotton and bandage are then saturated with a strong solution of alcohol, and over the bandage a piece of guttapercha tissue is fastened by means of a gauze roller. This guttapercha tissue should overlap the bandage by an inch on every side, and must have many perforations cut in it to permit the alcohol to evaporate. The bandage is removed every 12 to 24 hours, according to the severity of the case. It is essential that the bandage should reach an inch or two beyond the inflamed area. The author reports several striking cases in which great benefit was derived from this method of treatment.

Fedele[2] discusses the use of **phenic acid** in the treatment of **erysipelas.** He uses it hypodermically, mixed with diluted water and alcohol. In 1 case, in the course of 8 days, he gave 110 injections, containing in the aggregate 220 cgm. of phenic acid. The organism tolerates this antiseptic admirably because the phenol is combined with sulphuric acid.

Rushton Parker[3] is an advocate of the **treatment of carbuncles by extirpation.** He does not believe that simple incision relieves the pain or prevents septic poisoning, and in fact he thinks that such a procedure is liable to be followed by septic poisoning, because it opens new channels for the entrance of the infective organisms. He holds that extirpation is in reality no more severe a procedure than incision; that the result is infinitely better; that the pain is abolished when the infiltrated integuments are removed; and that as all infected material is taken away the opening of lymphatic channels makes no difference. The procedure is just as reasonable as the excision of tuberculous glands and the removal of sloughs.

Herbert M. Ramsay[4] reports a case of **pyemia successfully treated with antistreptococcic serum.** The patient had suppurating disease of the middle ear following measles. Operation was performed, apparently without noteworthy benefit. When placed upon serum the patient's condition was greatly improved. From the time the injections were begun, sleep was better and she was improved in every way. Within 12 days of the commencement of serum-treatment all organisms disappeared from the blood. [In this case streptococci were demonstrable in the blood, and it was therefore an eminently proper case for the use of the antistreptococcic serum.]

[1] Lancet, Jan. 28, 1899.

[2] Gaz. degli Ospedali, Oct. 23, 1898.

[3] Brit. Med. Jour., Nov. 26, 1898.

[4] Lancet, Oct. 22, 1898.

Copley[1] presents a report on the use of **antitoxin in traumatic tetanus.** He has treated 4 cases, all of them severe, and in each there was a septic wound. In 2 of these cases the period of incubation was 10 days; in 1 it was 6 days and in 1 was not known. Three of the cases were treated by hypodermic injections of antitoxin; and in 2 chloral and bromids were also given. These 3 cases recovered. In the fourth case the patient died within 24 hours, but the surgeon did not use antitoxin because he could not obtain it. He thinks the question of dose in such cases is of infinite importance. Large doses, say 30 cc., should be given at the start, and should be repeated at 6-hour intervals until there is improvement. In any case which threatens to be severe 50 cc. should be injected at once, and the dose can be repeated in 4 hours. The only unpleasant feature which followed the use of antitoxin was the appearance of a skin-eruption resembling urticaria. In 2 cases which terminated in recovery the infected area was amputated; in the third case the ulcer was curetted, and burnt with nitric acid. In the patient that died the wound-edges were cut away, the metacarpal bone removed, and the wound disinfected with formalin solution.

The Second Northern Congress of Internal Medicine, which met at Christiania, discussed the **serum-treatment of tetanus.** Holsti reported 2 cases cured by the use of Behring's serum. Five gm. of this serum was dissolved in 45 gm. of water and injected into the gluteal region. In both of these cases chloral and morphin were also administered. Edgren reported a case cured by the use of Tizzoni's serum. Holst reported 2 cases treated with the serum of a horse, the animal having had lockjaw 4 years previously. In these cases he also used venesection with subcutaneous injections of saline fluid and the internal administration of chloral. One case was fatal. Ustvedt stated that in Paris, where tetanus in certain classes of workmen had formerly been very common, the use of preventive injections in all wounds had rendered it extremely rare.

S. J. Mixter[2] reports a case of **tetanus** cured by the administration of large doses of **antitetanic serum.** The patient was a boy, 11 years old, who cut his foot with a piece of broken glass. The first symptoms appeared in 8 days, and 48 hours afterward serum was administered. At this time the patient was having spasms with opisthotonos every 20 minutes, and 80 cc. of antitoxic serum was injected under the skin of the thigh. On the third day of the disease the convulsions were more severe, and a second injection of 540 cc. was thrown in deeply among the muscles of the thigh. The fourth day the patient was somewhat better, and 100 cc. of Gibier's serum was thrown into the median basilic vein, and a few hours later 250 cc. of State-Board serum was injected. This injection was followed by violent spasms, but later the condition improved greatly; and from the nineteenth day onward the patient was convalescent. This case, Mixter says, was one of acute tetanus; the patient received altogether 3400 cc. of serum, an average of about 285 cc. a day.

Gwilym G. Davis[3] reports 2 cases of **traumatic tetanus** in which there was **recovery** after the use of the **antitoxin.** In one case the incubation-period was 2 weeks, and in another case it was from a week to

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[1] Brit. Med. Jour., Feb. 11, 1899.

[2] Boston M. and S. Jour., Oct. 6, 1898.

[3] Ann. of Surg., Aug., 1898.

10 days. Davis says that the impression in his mind is that antitoxin helped them; but it is an impression rather than a certainty.

At the meeting of the Paris Surgical Society, Nov. 15, 1898, the treatment of **tetanus** by the **intracerebral injections of antitetanic serum** was discussed. The results on the whole were disappointing. Hue reported the case of a child 11 years of age, in which tetanus followed a compound fracture of the forearm. Treatment was commenced at once on the advent of symptoms, but failed. Quénu reported 2 failures. Championnière reported 2 failures, and 1 success in a case of chronic tetanus. Reclus, Chaput, Nélaton, and others reported failures. Peyrot called attention to the interesting fact that it is sometimes difficult to differentiate cerebrospinal meningitis from tetanus.

Heckel and Reynès[1] report a case in which they employed the **intracerebral injection of antitetanic serum.** A trephine-opening was made on each side. Into one side there was injected 2½ cc. of serum, and into the other side 3½ cc. This was thrown into the substance of the brain. The patient died; but nevertheless these observers have faith in the method. They believe that tetanus should be treated in the following manner: Remove infected areas which are visible and not too diffuse; give antitetanic serum subcutaneously in order to prevent diffusion of the toxins throughout the organism; and give intracerebral injections to protect the nerve-cells from the action of the toxin.

Lewis S. Pilcher[2] reviews the subject of the treatment of **tetanus** by means of **intracerebral injections of antitoxin.** He presents first the opinions of George C. Rambaud, who quotes the conclusion of Roux and Borrel that the tetanic toxin passes from the blood into the nerve-cells, in which structures it becomes fixed. The tetanic antitoxin when injected into animals remains in the blood, and as a consequence the antitoxin in the blood is unable to reach and destroy the toxin which is fixed in the nerve-cells. The antitoxin will neutralize the toxin circulating in the blood and will antagonize further poisoning; but it cannot reach the poison, which is set in the nervous system; and hence the toxin passes practically unhindered from one nerve-cell to another nerve-cell. The effort should be to place the antitoxin where the toxin is acting—that is, to make intracerebral injections of antitoxin. Experiments on guinea-pigs by Roux and Borrel seem to show that intracerebral injections are of great value; and these observers believe that antitoxin thrown into the brain protects the upper portion of the spinal cord, even though the lower portion is already attacked by the poison. They do not think such injection cures the lesions that have already formed, as the contractions existing at the time of intervention always persist for a considerable time. If the medulla is poisoned, death cannot be averted. The injection is made into the front part of the frontal lobe after trephining. From 5 to 6 cc. of concentrated serum is slowly injected. This serum is made by drying 10 parts of ordinary serum, and redissolving the residue in 5 parts of ordinary serum. In addition to the intracerebral injections, antitoxin should also be given subcutaneously or intravenously for a few days in order to destroy the toxin in the blood. Rambaud gives a resume from French observers of 9 cases that were so treated; 4 terminated in recovery and 5 were fatal. In all the fatal cases the disease was very severe, and in 3 death occurred within 15 hours after the injection—that is, before the serum had time to be effective. He also calls attention to 3 American cases: 1 patient died without relief 12 hours after injection; 1 was relieved of the symptoms of tetanus, but died in 11 days from nephritis; and 1 entirely recovered. Pilcher reviews the article by Charles A. Church, in which is reported the case of a man, 27 years of age, who developed tetanus 12 days after receiving a lacerated wound of one of the legs. For 6 days specific treatment was not used. On the seventh day antitoxin was given subcutaneously. The next day an intracerebral injection was made into one frontal lobe to a depth of $2\frac{1}{3}$ in. Then the same procedure was carried out on the opposite side. While the patient was under the anesthetic antitetanic serum was injected intravenously and antistreptococcic serum was given subcutaneously. The use of antistreptococcic serum was continued. At the end of 18 days the spasm had entirely ceased. Chloral and morphin were also used. Pilcher very justly observes that this case is inconclusive as to the value of the method of intracerebral injection because of the free and prolonged use of the antitetanic injections and the simultaneous use of chloral; and that the case was chronic from the first is evident from the fact that not until the seventh day of the symptoms did the condition of the patient suggest to the family the necessity for anything besides homeopathic treatment. Pilcher then discusses the article of Forgue of Montpellier, who reported a case to the Society of Surgery of Paris in which tetanus arose 33 days after an injury to the great toe. On the sixth day of the disease the antitetanic serum was administered, and was continued on several following days. By the ninth day the condition had become desperate, and an intracerebral injection was given into each frontal lobe. In 10 hours improvement began. Treatment was kept up with chloral and bromid and subcutaneous injections of serum. Within 3 days after the intracerebral injection the improvement had become marked, and by the end of the week the case was cured. Pilcher thinks that in this case the lack of benefit from subcutaneous injections of antitoxin might have been due to the extremely small doses which were used. Pilcher then reviews the case reported by Semple of the Army Medical School at Netley. This patient developed tetanus more than 2 weeks after an injury. Three days after admission he was chloroformed and antitetanic serum administered by intracerebral injection, and at the same time antitoxin was given hypodermically in the flank. The man recovered completely, presented no brain-symptoms, and the temperature was normal throughout the treatment. [Tetanus-antitoxin has been before the profession for some years, and as yet with lack of positive evidence that it is a genuine remedy for tetanus, although there are some observations that it has possibly a prophylactic power. Almost all the reputed cures from antitoxin were instances of chronic or subacute tetanus, the incubation-period having been over 5 days; just such cases as have often recovered under other plans of treatment. Owing to the general skepticism as to the value of the remedy as generally used, Roux and Borrel tried experiments and advised intracerebral injection. Twelve cases have been reported in Europe as so treated (Rambaud), and 8 cases in this country.[1] All these cases were subacute or chronic. Four of the European cases recovered and 1 of the American cases.]

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[1] Presse méd., No. 74, 1898.

[2] Ann. of Surg., Apr., 1899.

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[1] Therap. Gaz., Feb. 15, 1899.

AMPUTATIONS.

F. W. Collinson[1] alludes to the difficulty encountered while amputating muscular limbs in keeping the flaps out of the way of the saw, in keeping the fingers out of danger, and in holding firmly the proximal part of the bone. He now uses, with great satisfaction, a **metal retractor,** which is shown in Fig. 1. It consists of two concavoconvex blades, which when fitted together form half of a cylinder with a hole in the center. When about to be applied the blades are separated, and the lower one is placed so that the bone lies in the apex of the notch. The upper blade is passed to the other side of the limb and pushed into the grooves of the lower blade and the bone encircled. Flaps are covered by the metal and the instrument is held by the edges. In the case of two bones, one bone fits into the apex of one notch and the other into that of the companion retractor. By pressing the flat end of the female blade on to the table the bone can be held as in a vice. By pulling toward the body the flaps may be retracted to any extent desired.

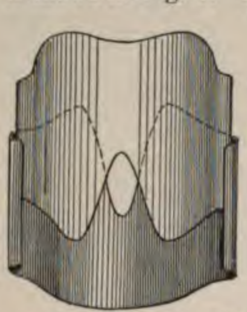

FIG. 1.—Collinson's metal retractor for amputations (Lancet, Nov. 5, 1898).

F. A. Southam[2] advocates amputation for certain cases of Charcot's disease of joints. About 6 years ago he had a case in which an ankle-joint had been completely disorganized. The removal of the foot was the obviously proper treatment; but in the absence of any definite knowledge as to the value of **amputation for Charcot's joint,** and remembering the unsatisfactory results which follow amputations for perforating ulcers in tabetics, he hesitated as to what procedure to adopt, when he saw a short article Jonathan Hutchinson had written, in which it was stated that excellent repair took place when an amputation was performed in the progress of locomotor ataxia. Hutchinson's case was a Teale's operation in a middle-aged subject who had had locomotor ataxia for 10 years, accompanied by perforating ulcer and disease of the bones of the foot and of the ankle-joint. In view of the result in Hutchinson's case Southam advised his patient to submit to an amputation of the leg below the knee-joint. It was performed, and the result was most satisfactory; and since then he has performed the operation on 3 other patients, the ankle-joint being affected in 1 case and the tarsal joints in the other 2. In all 4 patients the result has been perfectly satisfactory. The stumps healed quickly, without suppuration, and without any tendency to sloughing of the soft parts or necrosis of the bone.

Stephen Smith[3] discussed before the New York State Medical Association **amputation at the knee-joint for senile gangrene of the foot.** He said that many surgeons advised amputating above the knee-joint in such cases, believing that it was impossible to determine at what point the circulation was obstructed, and in consequence an amputation above the knee was likely to furnish a better-nourished flap than one done at the knee. He showed that there are 8 arterial branches in this region, and that by properly planning the flaps an amputation at the knee-joint could be made without interfering materially with the blood-supply. He advises the following operation: Commence an incision 2 inches above the upper margin of the patella and carry it downward over the middle of the bone to the tibial tuberosity. From the lower extremity of this incision make 2 curved incisions; one extending in the direction of the external border, and the other in the direction of the internal border of the limb, each of these incisions having its convexity downward. These 2 incisions are joined by a posterior straight incision across the upper portion of the calf. The flaps are dissected up, the patella removed, and the knee-joint disarticulated. Stephen Smith reports a case in which this operation was successfully performed on a man 78 years of age.

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[1] Lancet, Nov. 5, 1898.

[2] Ibid., Nov. 12, 1898.

[3] Phila. Med. Jour., Oct. 29, 1898.

Berger[1] discusses the operation of removal of the entire upper extremity for malignant tumors of the upper end of the humerus, and he comments on 2 cases, 1 of which was performed by himself, and 1 by Kirmisson. Kirmisson's patient, who was 10 years of age, suffered from sarcoma of the upper portion of the humerus, and recovered perfectly from the operation of removing the entire upper extremity, but died of recurrence of the disease in 7 months. Berger's patient was 28 years of age, and had a myxosarcoma of the upper portion of the humerus. The patient recovered from the operation, and a year and a half later was still free from the disease. Berger has collected 46 cases in which this **operation** was performed for **disease of the upper portion of the humerus.** Only 2 of these cases were fatal at once, shock being the cause in each instance. This mortality of 5% compares very favorably with the mortality from secondary removal of the scapula and clavicle for recurrent disease of a malignant nature after amputation through the shoulder-joint, for after such procedure the mortality is 13%. The lower mortality of the larger operation is due to the fact, Berger thinks, that there is less loss of blood when the entire upper extremity is removed at once than when the scapula and clavicle are removed secondarily, because after amputation of the arm the vessels around the scapula are much dilated and hemorrhage from the secondary operation is excessive. Of the 44 patients that recovered, 10 were alive 12 months after operation and 13 cannot be located. The others died of recurrence, either local or general. If we compare these results with secondary removal of the scapula for recurrence after disarticulation, we find 23 cases of these recorded; 3 of these patients died from the operation, 6 could not be used for statistics, and in 10 there was recurrence in from 3 to 25 months. Only 4 could be said to be recoveries. One of these had lived 6 years, and another 20 years. All the evidence points to Berger's operation as the correct one for these cases, except, as has been shown, in cases of myeloid sarcoma.

CYSTS AND TUMORS.

William T. Bull[2] furnishes a series of notes on **cysts of the breast,** founded upon 39 cases of retention-cysts and 8 cases of general cystic disease of the breast; he has never seen in the breast a sebaceous cyst, a simple serous cyst, nor a hydatid. Of these patients 22 were married women who had had children, and 17 were unmarried. In only 4 was there a history of mastitis or ulcerated nipple. In 6 a blow was a possible cause. Seventeen were from 40 to 50 years of age; 10 were from 30 to 40; 9 were over 50; and 3 were under 30. The duration of the cysts varied from 1 week to 10 years, and the size from a bean to an egg. In 26 cases there was a single cyst in 1 breast. In 7 cases there were 2 or more cysts. In 4 cases there was 1 cyst in each breast. In 2 cases an enlarged axillary gland could be detected; but it was not hard. The fluid contents of the cyst were always thin, turbid serum of a gray or light-brown color. The diagnosis of these cysts is easy when they are superficial or in small and soft glands. It may be difficult when they are deeply seated or in a large breast. The outline of such a cyst is sharp and rounded. The surface is smooth, and when palpation is practised with the patient recumbent, there is a feeling of elastic resistance. The skin is never adherent or wrinkled, though it may be tightly stretched and the superficial veins may be enlarged. There is seldom any discharge from the nipple. A bloody discharge always points to papillary growth in the ducts and suggests malignant disease. Slight twinges of pain, when the tumor has existed but a short time, suggest the existence of a cyst; whereas small cancerous areas are rarely painful. In fully one-fourth of Bull's cases there was some pain situated near the axilla and radiating down the arm. If the patient states that the tumor has disappeared and then reappeared, the diagnosis of cyst becomes more probable. Puncture with the needle of a hypodermic syringe is a positive diagnostic test, and a rigid needle should be employed to insure against breaking. Bull reports several instances of cysts disappearing spontaneously. He is less disposed to operate on cysts of the breast than formerly; but in 13 cases he has operated. Two cases which were aspirated were followed by reappearance of the cyst. Aspiration without pressure or any external application cured 14 cases. Bull's experience leads him, after he has made the diagnosis certain by puncture, to begin the treatment of ordinary-sized cysts of one or both breasts by the use of the aspirator. He does not believe in injecting these cysts; and external applications are used only as placebos. He advises incision if a cyst recurs, if it is unusually large, or if there are multiple cysts, and if the patient is extremely nervous about her trouble. He has seen 8 cases of general cystic disease of the breast. In 3 cases there was lumpiness of the breast, and these women were advised to wait a while before operation was suggested. In 4 cases 1 breast was removed, but in such a case it is justifiable to defer excision till cyst-formation is very marked and the volume of the breast is positively increased. We have little evidence that this condition degenerates into cancer, and it may take many years for its development. The cysts which occasionally form at the menopause during the process of involution need not be interfered with.

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[1] Rev. de Chir., Oct., 1898.

[2] Med. Rec., Apr. 2, 1899.

E. D. Ferguson[1] reports a very unusual case of **cyst of the urachus.** Such a cyst is due to failure in atrophic change in the allantois, and is extraperitoneal in situation. Ferguson's case was thought to be malignant disease of the omentum, but while operating it was discovered

[1] Phila. Med. Jour., Apr. 15, 1899.

that the cyst lay between the peritoneum and the transversalis fascia, and the nature of the case flashed upon the surgeon. The cyst was opened and about 3 quarts of watery fluid evacuated. It was found possible to strip the inner layer from the rest of the sac without hemorrhage, and the entire lining was removed except at the umbilicus, where tissue-blending rendered complete removal impossible. That portion of the posterior part of the cyst-wall which could be placed in a fold and yet permit easy approximation of the peritoneum was stitched together and excised. A strip of denuded sac was left on each side and at each end of the excised area. These sulci were closed by running stitches of kangaroo-tendon carried to the edge of the aponeurotic incision, and as far up as the portion round the umbilicus that could not be denuded. The remainder of the incision was closed in layers; a single deep skin-suture separated the umbilical area from the subcutaneous suturing beyond. The pocket left at the umbilicus was packed with gauze, and the patient recovered.

W. W. Grant[1] recommends a **new operation for epithelioma of the lip.** A straight perpendicular incision is made on each side of the diseased area and extended well below it. These cuts are united by a transverse incision and a quadrangular piece of tissue is removed. From each lower angle of the wound an incision is carried obliquely downward and outward over the upper and lateral surface or border of the chin, and these incisions can be carried, if it is desired, beneath the jaw, in order to permit of the removal of lymphatic glands. These incisions give 2 triangular flaps, which with a little traction slide easily over the tissues of the chin. The flaps are united in the center with interrupted sutures of silkworm-gut, and the lower borders are united to the chin with a continuous catgut suture.

Bennett[2] sets forth some **peculiarities** in the behavior of certain **malignant and benign growths.** He says that some tumors, although certainly malignant in structure, pursue an innocent course and even disappear spontaneously; and other tumors malignant in structure become quiescent, a condition he speaks of as negative malignancy. Some tumors which begin as innocent growths pursue an extremely malignant course. In a certain percentage of cases microscopic examination fails to determine whether a growth will run a malignant or an innocent course. In fact, the clinical behavior of a new growth is often a better test of malignancy than is the microscopic appearance. The concentration of the patient's mind on the area of disease is a factor in stimulating the growth of innocent tumors and in producing malignant disease in very susceptible people. In nervous patients of the type indicated malignant disease is more apt to recur after operation than in phlegmatic individuals, and its growth when it does recur is apt to be more rapid. There is no evidence that operation for carcinoma of the breast that has passed into a state of negative malignancy is either necessary or beneficial. It is not well to let patients of the nervous type know that they suffer from cancer of the breast.

W. Watson Cheyne[3] has contributed a very noteworthy article under the caption, What can **surgery** do to relieve sufferers from **cancer** in various parts of the body? There are two questions: Can we cure these patients? When we cannot cure them, can we prolong life and make it more comfortable? Much has been written about the use of the term cure. Some surgeons say that if we operate upon a cancer and the patient remains well we ought not to call it a cure. It is true that the patient has recovered and the operation has been successful; but such critics say there has been no cure, because the disease has not disappeared, and has only been taken away. The meaning of the word cure is to restore the individual to health, and refers to the patient and not to the disease; and the term cure does not indicate the means adopted to obtain restoration to health. The term cure is perfectly justifiable. A different question arises when we consider what length of time should elapse after operation before we can assume that the patient is cured. The answer to this question can be given only by experience, and experience will vary with the nature of the operation performed, with the freedom with which the disease was removed, and with the rapidity of growth of the original disease. We must bear in mind the varying virulence of different cases of cancer, and can only strike an average. In cancer of the breast Volkmann suggested 3 years as a limit, but this is not universally correct. Nevertheless, the chances are that if a patient is well at the end of 3 years he will remain well. The highest percentage of recurrence in patients who have apparently been well at the end of 3 years is given by König, who puts it at 15%. So that, according to his estimate, the odds in favor of a patient who is well at the end of 3 years are 6 to 1. But Cheyne thinks this estimate as to the number of recurrences is far too high. The experience on which it was founded was gained after the old operation. When the radical operation is performed these possibilities of recurrence are lessened, and the chances of late recurrence, as of early recurrence, are much diminished. He has 30 cases which have passed the 3 years' limit, and only 1 has developed cancer, and in this case it is doubtful whether the condition should not be attributed to a new development rather than to a recurrence of the disease. As a matter of fact, patients who are perfectly well at the end of even 1 year after the operation have an excellent chance of immunity. Cheyne's statistics give the chances in favor of nonrecurrence after 3 years as 17 to 1. He is a believer in the local origin of cancer, and says the view that the disease is of constitutional origin has been very generally abandoned. He, of course, recognizes that there is a greater tendency to cancer in some people than in others; and even if one cancer is got rid of, another may appear at a later period, and may even be more apt to appear than in a person who has not had cancer. The answer to the question, "What can we do for patients suffering with cancer?" is that if we get the disease in an early stage and operate freely the patient may be cured. The attempts to cure by other means than operation are almost always futile. The destruction of cancer by local applications may lead to improvement of the local trouble, but does not reach outlying deposits, and therefore very rarely do the applications lead to cure. We meet with many cases in which, because of a want of early diagnosis, neglect on the patient's part, or excessive malignancy with rapid spread of the disease, or from the situation of the disease, there is no possibility of removal bringing about a cure. The second question then arises: What shall we do for a patient whom we cannot hope to cure? In many cases we can do much to prolong life and much to make life more tolerable.

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[1] Med. Rec., May 27, 1899.

[2] Lancet, Jan. 7, 1899.

[3] Practitioner, Apr., 1899.

The modern studies of Stiles, Heidenhain, Sappey, and others show that in a case of **cancer of the breast,** however small, many areas must be looked on with suspicion. Cancer-cells may be deposited in any portion of the breast, although the deposit may not be noticeable. They may be in the suspensory ligaments, in the lymphatic plexus of the skin over the breast, in the pectoral fascia, in the fat and fascia and lymphatic vessels between the breast and the axilla, or in the glands and lymphatic vessels of the axilla. It is necessary to remember that the breast is a much larger gland than was formerly supposed, and that outlying portions of it reach to the middle of the sternum, to the margin of the latissimus dorsi muscle, downward to the abdominal muscles, and upward almost to the clavicle. The lymphatic glands for a time interpose a barrier to the spread of the disease; and in recent cases, unless there has been accidental infection through the blood-current, removal of the lymphatic gland area in the axilla with all the lymphatic supply from the breast may remove all of the disease. The modern operation is far more radical than the old one. By the old operation the average of cases remaining free from disease 3 years after operation was from 8% to 10%. By the modern operation Cheyne shows that of 61 of his cases 30 remained well over 3 years, nearly 50%. Similar results have been obtained by Halsted and by Butlin. Cheyne does not think that it is essential to clear out the posterior triangle of the neck in all cases, because it is only in a limited number that the glandular infection spreads in this direction; and he does not consider it necessary to remove more than the lower half of the great pectoral muscle unless there are nodules of cancer in the muscle or the growth is adherent to or beginning to infiltrate the muscle. By free undermining of the skin it is usually possible to approximate the skin-edges. If this cannot be done, the wound should be skin-grafted either immediately or, if the patient is weak or exhausted, a week or 10 days later. In case radical operation is impossible, what can be done? It is sometimes desirable to do a palliative operation because of the local suffering or the existence of a foul, sloughing mass. We can in such cases remove the breast by the old operation. This will not cure the disease, but will make the patient much more comfortable. In some cases there is very violent pain from involvement of the axillary nerves, and it may be necessary to divide these nerves. Some surgeons in such cases advise amputation at the shoulder-joint, with division of the nerves and vessels high up. This has even been suggested as a method of radical cure; but when the disease has progressed to so great an extent, the chances of a radical cure by such a procedure ought not to be considered.

Cancer of the skin is the most favorable form of cancer, particularly when it is in a situation which permits room for wide removal, and when the skin is not in direct contact with muscular structures. As a rule, it grows slowly and remains limited to the skin for a considerable time. It is true that it infects lymphatic glands after a time, and that the disease in these glands grows rapidly; but, curious to say, the lymphatic vessels between the skin and glands are rarely diseased. The free removal of the local growth may sometimes rid the patient of the disease. If necessary, we should combine with the removal of the local disease the removal of infected glands and the whole area of adjacent glandular tissue. We do not have the same fear of removing glands attached to large vessels that we used to have, for we know that it is the vein alone that is involved in the first instance, and the removal of the vein with the glands is not a grave matter. One of the most unfavorable forms of cancer of the skin is **epithelioma of the lower lip,** because of the fact that the muscle is closely connected with the skin and mucous membrane and becomes infected early, and the cancer-cells are driven along the glands at an early period. Nevertheless, free removal gives good results. We should cut wide of the disease and prolong the apex of the incision down to the edge of the lower jaw. Enlarged lymphatic glands and vessels should, of course, be removed. About 40% of these cases are cured. We should freely remove material in the direction of the lymphatic area by prolonging the apex of the wedge-shaped incision downward. Some surgeons remove the glands at the time; others, as soon as there is the slightest evidence of enlargement. The glands which become infected in cancer of the lip are those in the middle line along the chin, along the upper border of the hyoid bone, and in the submaxillary triangle. It is not proper simply to remove individual glands, but we should make a curved incision, starting over the center of the hyoid bone in the middle line in front, running almost directly upward to the edge of the lower jaw; then outward along the jaw to near the angle, and then curving downward over the vessels to a point below the level of the hyoid bone. A flap of skin, fat, and platysma is dissected down, the surgeon being careful not to cut so deeply as the glands. The whole area is thus exposed. The fat is divided down to the muscles beyond the middle line, and the fat and fascia are detached at the level of the lower jaw along the line of incision. This tissue is then cleaned off the muscles, care being taken to see that there are no glands beneath the muscles. The submaxillary gland and all the overlying fat and lymphatic glands, and all the material down to the hyoglossus muscle, should be removed. If enlarged glands are present in the anterior triangle, or if the glands in the submaxillary triangle are large, it is well to clear out the upper triangle also; but it is not necessary to effect this clearance in every case.

Cheyne says that **cancer of the tongue** is one of the worst forms that we have to do with, because of the rapid spread of the disease, the rapid glandular involvement, the great pain, and the septic troubles which are apt to follow operation. The chief cause of mortality after operation is sepsis. The danger of this can be greatly lessened by cleansing the mouth and the teeth before operation, washing out the mouth repeatedly for 2 or 3 days before the operation with some nonirritating antiseptic, scrubbing the teeth and cleansing them with an antiseptic powder 3 or 4 times daily, removing all stumps, and injecting antistreptococcic serum. He gives 20 c.c. of the antistreptococcic serum 36 hours before operation, and 10 c.c. 12 hours before operation. It is a good plan also to swab the wound with a 10% solution of zinc chlorid after bleeding has been arrested. In order to avoid sepsis the tongue should be manipulated gently and not bruised, and as much of the wound as possible within the mouth should be sutured. Suturing will be greatly facilitated if it is found possible to make a small flap of mucous membrane on the dorsum of the tongue; or, when one-half the tongue is removed, leaving a projecting edge of mucous membrane on the dorsal surface. By the employment of these measures the mortality from excision of the tongue, if the operation is of moderate extent, is from 5% to 10%. If the disease has spread deeply into the muscular substance of the tongue, it will be widely distributed throughout the organ, and free removal must be carried out, and it must be especially carried well backward; and if the middle line is overstepped, the tongue should be completely excised. When the cancer is on the back of the tongue and is extensive—even when it is unilateral—complete excision must be carried out, because the lymphatic plexuses at the posterior part freely communicate on both sides. In partial removal of the tongue Whitehead's operation is the proper one. In complete removal Kocher's operation is the best. When cancer extends to the floor of the mouth the sublingual gland should be removed, for there are several lymphatic glands in intimate relation with it which are early infected. The question arises whether the glandular area should be cleared out at the same time the tongue is removed, even though infected glands cannot be detected. Cheyne's former custom was to wait until he could feel glands; but he has altered his procedure, and now clears out the submaxillary and anterior triangles before removing the tongue, and at this time ties the lingual artery near its origin. The incision passes along the course of the sternomastoid muscle from just in front of the mastoid to the level of the cricoid cartilage, and from this a second incision is carried forward from about 1 in. below the angle of the jaw to the middle line. The anterior border of the sternomastoid is defined, the flaps are raised, the deep fascia at the lower portion of the triangle is incised, the jugular vein is exposed, skin and fat are cleared off the vein (taking the sheath of the vein with them), the sternomastoid is lifted, and the fat and glands beneath it are removed. The descendens noni nerve is saved if possible. The mass is lifted forward, the fascia is divided near the edge of the jaw and along the hyoid bone, and the whole submaxillary space is then cleared out. The lingual artery is next tied. If the glands are firmly adherent to the jugular vein, the vein should be removed with them. Unless the disease in the mouth is far advanced, it is well to divide the procedure into two stages: in the first place, clearing out the triangles, and a week or two later removing the tongue. This gives time for the neck-wound to heal and saves the patient from the risk of cellulitis and secondary hemorrhage. In cases in which there is little or no glandular infection, it may be well to remove first the affected part of the tongue, and a week or two later clear the triangles. But when there is marked glandular infection the disease of the glands grows much more rapidly than the disease in the mouth, and this is especially the case after a septic wound has been left in the mouth; so that, if the glands are not removed before the tongue, after the tongue is taken away they may enlarge so much in a short time that removal becomes impossible. What can be done for inoperable cases? It is a distinct advantage to remove the disease in the mouth, even if the glands are inoperable; but if it is found impossible to remove the disease in the mouth, division of the gustatory nerve may give relief to the pain. It is no kindness to the patient to perform gastrostomy. The troubles are not much relieved by tracheotomy. The use of atropin is of some value by diminishing the salivary secretion. Morphin must be given to relieve pain, and the patient may be fed by the rectum. Cheyne then discusses in a most practical manner the subjects of cancer of the throat, cancer of the larynx, cancer of the esophagus, cancer of the stomach, cancer of the intestine, and cancer of the rectum. The entire article should be carefully read by all surgeons.

Albert[1] discusses **bilateral cancer of the breast.** He has met 4 instances of this condition, in 2 of which he operated. In one case he removed a growth from the left breast of a woman, and subsequently a tumor appeared in the right breast. In another case a tumor appeared first in the left breast and was removed, and subsequently another appeared in the right breast.

Herbert Snow[2] writes a letter to the *Lancet*, in which he suggests that **lymph-gland juice** will be found efficacious in the treatment of **cancer.** He says that particles of epithelioma are carried by lymph to adjacent glands, where they are arrested, and blood-contamination is thus for a time prevented. Individual examples of this lesion show a remarkable difference in the speed with which glands are infected. Cancer of the tongue is apt to infect glands within 6 weeks; but epithelioma of the foot or hand does not cause gland-infection for several months, and cancer of the external genitals does not do so for a year. A mammary enlargement close to the axilla causes gland-infection almost at once; whereas a cancer at the sternal border of the breast is not followed by secondary enlargement of the axilla for 8 or 10 weeks. In true sarcoma the lymph-glands are not directly infected at all, although we cannot doubt that many nuclear fragments are often carried to them. There is no gland-deposit in sarcoma, except by direct infiltration or general blood-contamination. Snow comes to the conclusion that it is the function of the **lymphatic glands** not only to arrest, but also to **destroy the protoplasm of cancer.** In the ordinary course of events this takes place up to a certain point, but eventually the gland is overpowered by force and numbers. Under some circumstances the resistance is continued for a considerable time and a large number of infecting particles are killed. On the supposition that lymph-secretion is the active agent, Snow has made an extract of fresh lymph-glands, and has administered it in sundry cases with apparent benefit and without any bad symptoms.

William Mitchell[3] advocates the employment of **formalin** in the treatment of certain **inoperable malignant tumors.** He treated a case of sarcoma of the cheek with a 20% solution of formic aldehyd. After he had applied this solution, he covered the growth with a sheet of guttapercha to prevent evaporation. There were hardening and tissue-necrosis produced for $\frac{1}{4}$ in. into the tumor. This necrotic area was curetted and the formalin again applied, and after a time the growth was entirely removed. The application caused considerable pain and some edema of the surrounding tissues.

E. Schweiler[4] considers the value of serum-therapy in the treatment of malignant tumors. He discusses the **effects of erysipelas on malignant tumors,** and presents the records of 59 cases to show the effects of spontaneous or artificially induced erysipelas. Of these cases 15 recovered. His table contains the records of 95 cases treated with erysipelas-toxins or erysipelas in combination with the products of the

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[1] Wien. med. Woch., Jan. 7, 1899.

[2] Lancet, Oct. 15, 1898.

[3] Brit. Med. Jour., Feb. 11, 1899.

[4] Die Erysipel—Erysipeltoxin—u. Serumtherapie d. bösartigen Geschwülste, Leipzig, 1898.

Bacillus prodigiosus. Of these, 15 recovered, about 16%; in 3 cases there was improvement; in 15 there was a considerable degree of constitutional disturbance; in 9 the growth increased rapidly after the treatment. Death occurred in 14 cases; in some from collapse, in others from sepsis or pneumonia. He presents a table of 49 cases treated with erysipelas-serum, of which 7 recovered; in 37 of these cases there was very positive constitutional disturbance. Four cases were treated by carcinoma-serum or sarcoma-serum without any benefit at all. This study shows that the best results are to be hoped for from the action of erysipelas itself. From the use of Coley's fluid about 16% have recovered.

William B. Coley[1] recently reported a case of inoperable spindle-cell sarcoma of the parotid gland successfully treated with the mixed toxins of erysipelas and Bacillus prodigiosus.

A. Marmaduke Sheild[2] reported a case of **recurrent sarcoma** of the fascia of the back which was treated by **Coley's fluid,** and which was powerfully influenced by the treatment. The phenomena which ensued seemed to be largely inflammatory, but after a time the growths again increased in size. Had the growth been smaller he thinks it might have disappeared under treatment.

William B. Coley[3] discusses in a thorough and careful article the treatment of inoperable malignant tumors. His conclusions are: 1, the mixed toxins of erysipelas and Bacillus prodigiosus have an inhibitory action on the growth of malignant tumors of whatever variety; 2, the influence is most marked in sarcoma, especially in the spindle-cell variety, and least in melanotic sarcoma and in carcinoma; 3, a considerable number of sarcomas, the accuracy of the diagnoses being beyond question, have entirely disappeared under the influence of this treatment; 4, a large proportion of these cases have remained free from recurrence more than 3 years; 5, the toxins produced a rapidly progressive necrobiosis with fatty degeneration, which is specific in character and which tends to destroy the tumor, whether the fluid is injected at a distance or is injected locally, an action in no wise resembling that of a local escharotic; 6, unless certain precautions are taken there are the following risks in the treatment: Collapse from the administration of too large a dose, especially when the fluid is injected into a very vascular tumor; pyemia from carelessness as regards infection, especially in the presence of a granulating or sloughing surface. That these risks are slight is shown by Coley's own figures. He has treated 200 patients, and but 2 of them died as a result of the treatment; 7, theoretically it seems wise to administer small doses of the toxins for a short time after a primary operation as a prophylactic measure; 8, the action of the toxins upon sarcoma is in strict accord with the known action of the living streptococcus of erysipelas; 9, the toxins, to be of value, must be made from virulent cultures of the streptococcus of erysipelas. [There is no doubt that the mixed toxins are able in some cases to modify powerfully the growth of sarcomata. Many cases have been reported in which a growth for a time diminished in size. A few—a very few—*proved* cures have been recorded. The agent has been most successful in spindle-cell sarcoma.]

Maurice H. Richardson[4] reports a most extraordinary case in which a sarcoma disappeared. The patient had an extremely large round-cell sarcoma infiltrating the left axilla and scapula. Extirpation was attempted and abandoned. The wound became severely infected and the tumor disappeared.

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[1] Ann. of Surg., Aug., 1898.

[2] Brit. Med. Jour., July 23, 1889.

[3] Practitioner, Apr., 1899.

[4] Ann. of Surg., Dec., 1898.

D'Arcy Power[1] discusses the subject of **vanishing tumors**—that is, the disappearance of a tumor which occasionally occurs after a slight surgical operation, as incision, puncture, or simple exposure. A vanishing tumor must never be confused with a phantom tumor, for it is a true swelling, visible to the eye, recognizable to the touch, and capable of exposure by a surgical operation, occurring at any age and in either sex, usually benign, but sometimes malignant. He reports a series of interesting cases. The first case was a large cystic lymphangioma of the neck which was partly removed by a surgical operation, and the portion which was irremovable subsequently disappeared. The second was a case of a growth which caused the small intestine to adhere to the liver, and disappeared after laparotomy. A tumor fixed in the pelvis, a large abdominal tumor, and a tumor of the pylorus disappeared after laparotomy. A fibrosarcoma of the scalp disappeared after partial removal. A woman labored under advanced schirrus of the breast, and on opening the abdomen metastatic cancer-deposits were found in the intestine. One ovary and the breast were removed and marked retrogression-changes occurred in the cancer. This group of tumors is most interesting. Some disappeared spontaneously and some after a surgical operation. Occasionally such tumors are true sarcomas or carcinomas, but usually are inflammatory swellings of the connective tissue. They form slowly and painlessly, and they disappear in a like manner; yet, being of considerable size and being formed of cells which multiply rapidly, they may cause pressure-symptoms and constitutional disorders very similar to those produced by malignant growths. An interesting question is: What would have become of these growths had they been allowed to remain without operation? Power thinks that the lymphatic tumor might have remained 8 or 10 years, eventually shrivelling to become a wen or soft sarcoma; or it might have disappeared altogether, like the case reported by Raymond Johnson. But the process of disappearance in such a case is excessively slow, and it is desirable to expedite it by a surgical operation. We remember that vanishing cysts occur not only in children, but also sometimes in the breasts of women. The enlarged liver of Case 2 he thinks would eventually have suppurated, as the inflammation was probably tuberculous, and the cure was comparable to the cure of tuberculous peritonitis by simple incision. He does not know what would have become of the abdominal swellings. They might have disappeared; they might have formed abscesses; they might have passed into sarcomatous growths. The effect of surgical intervention on such tumors seems to be identical with that which takes place when we incise an inflammatory area: tension is relieved, complicated tissue-changes occur, and resolution takes place; these changes probably being the outcome of alterations in the vasomotor and trophic functions. The old surgeons often endeavored to inaugurate these changes by general bleeding, and there is no doubt that phlebotomy has cured many swellings. At the present day, instead of bleeding from the arm, we attack the affected part. It is extremely difficult, however, to explain the disappearance of a malignant tumor; yet there can be little doubt that sarcomas, and in some rare cases carcinomas, do disappear. The disappearance of a cancer is almost inconceivable unless we believe that the disease is due to an infection in which the result, as measured by the growth, is in direct proportion to the amount of poison absorbed or manufactured within the body. Power does not wish to be understood, however, as recommending a partial removal of a tumor whenever a thorough removal is possible.

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[1] Lancet, Mar. 4, 1899.

Charles A. Morton[1] writes on **excision of the upper end of the tibia for myeloid sarcoma** as a substitute for amputation. He reports 2 cases. In the first case the patient has obtained a useful limb, and the second patient is beginning to walk without support. Myeloid sarcoma is the least malignant form of bone-sarcoma. Recently J. Bland Sutton stated that if such a tumor has not penetrated its capsule, it may be removed without fear of recurrence. He says, further, that myeloid sarcomas do not disseminate, and suggests that we call them myelomas instead of myeloid sarcomas. Clutton says they seldom return after removal, and they may almost be regarded as benign growths. In several cases, instead of amputating the limb, the portion of bone affected has been excised and there has been no recurrence. Morris resected the lower end of the radius for myeloid sarcoma, and the patient was well 13 years later. Lucas resected the lower end of the ulna for a myeloid sarcoma, and the patient was well 10 years later. Sutton removed a myeloid sarcoma from the sternal end of the clavicle, excising this portion of the bone, and the patient was well 4 years later. Clutton has reported a case of excision of the lower end of the radius for a growth of this character, with no recurrence to the time of the patient's death, from Bright's disease, 18 months later; and another case of the same kind free from occurrence 9 years after operation. Billroth excised the lower end of the femur in a case of central sarcoma, but the patient died of pyemia; and in another case he excised the lower third of the tibia for pulsating central sarcoma, but gangrene occurred, and this patient also died of pyemia.

Emanuel J. Senn[2] writes on the value of the **anterior axillary incision in cancer of the breast.** The breast is circumscribed by 2 curvilinear incisions which meet above at the border of the great pectoral muscle. The incision is then continued slightly internal to the outer border of the great pectoral muscle in an upward direction to a point about 1 in. above the apex of the axilla, where it takes an outward course in the deltoid region, forming a groove which terminates at the level of the apex of the axilla. The breast is removed from the thoracic wall, and is suspended by the axillary glands and adipose tissue, which are enucleated *en masse* by blunt dissection (Fig. 2). He thinks that the anterior axillary incision offers certain decided advantages: It exposes a larger field for radical work than does the ordinary incision; by making traction on the axillary flap the flap is easily freed from the subcutaneous tissue and the position of the axillary vein is rapidly discovered; the danger of injuring the vein is greatly lessened, because all the landmarks are well bared and dissection is carried out away from the vein rather than toward it, as is done in the old operation. The axillary region is unfavorable for primary wound-healing, because it is difficult to render aseptic; hence it is advantageous to enter it from a region which can be thoroughly cleansed. The incision is so situated that the scar which results will not impede the motion of the arm, and as the cicatrix is not dragged upon by the arm, the scar-tissue is little exposed to trauma through stretching; hence there is less likelihood of recurrence of the disease in the scar. [The anterior incision is one of the elements of Halsted's operation. We have employed an incision similar to that of Senn for 2 years, and are in perfect accord with him as to its advantages.]

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[1] Brit. Med. Jour., July 23, 1898.

[2] Jour. Am. Med. Assoc., May 27, 1899.

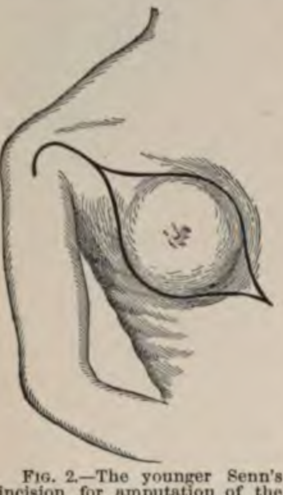
FIG. 2.—The younger Senn's incision for amputation of the breast (Jour. Am. Med. Assoc., May 27, 1899).

G. E. Herman[1] showed a woman to the Medical Society of London whom he believed was cured of **recurrent cancer of the breast** by oöphorectomy and the administration of thyroid extract. The breast had been originally removed in May, 1895, and a local recurrence was removed in October of the same year. In July, 1898, when Herman saw her, there was a large ulcerated surface over the right breast, a hard lump in the left breast, and enlargement of the glands of the left axilla. Menstruation was irregular because of the onset of the menopause. In July Herman removed both ovaries and administered thyroid extract. By March the ulcer had soundly healed, but there were some nodules resembling keloid remaining, and these had not altered in size for some months. The lump in the left breast and the enlarged axillary gland could no longer be felt. Another patient, whose case he had published some time ago, was well at that time. Herman maintained that the use of **thyroid extract** was a contributing factor in the cure. Stanley Boyd, in discussing this paper, stated that he was by no means sure that the nodules in the cicatrix were nonmalignant. Boyd was not convinced of the value of thyroid in the treatment. Battle was also of the opinion that the nodules were malignant.

Stanley Boyd[2] writes to the *Lancet*, on the treatment of **recurrent mammary cancer by oöphorectomy and thyroid extract.** He says one of the most important points in Herman's case is that menstruation had been irregular for 6 months and nothing had been seen for 3 months, and if the patient, who was 49 years of age, had not reached the menopause, she was certainly on the verge of it. One of Boyd's patients was 49 years of age, and had seen no menstrual flow for 6 months; no benefit followed oöphorectomy, but she labored under many visceral and osseous growths. We have still to determine when the influence of the ovaries on cancer ceases. Boyd thinks that the keloidlike nodules of Herman's case are cancerous. A most interesting point is to consider what part thyroid plays in producing the disappearance of cancer in such a case. Boyd has tabulated 7 cases of his own treated by oöphorectomy only. One of these cases shows less evidence of existing cancer than

[1] Lancet, Apr. 15, 1899.

[2] Ibid., Apr. 29, 1899.

does Herman's present case. If oöphorectomy alone effected disappearance in this case, it may have been the real active agent when thyroid was given in addition. In Boyd's second case nothing could have been more satisfactory than the rapid and almost complete removal of the cancer-nodules after oöphorectomy only, but they soon recurred. Was that because thyroid had not been given? It was then given to the patient, and the most obvious result was the rapid loss of 5 pounds. Besides his own 7 cases Boyd collected 8 others, in all of which thyroid was given in addition to the oöphorectomy, and in 3 of these information was very scanty. But they, like No. 1 and No. 2, were Beatson's own cases, and there was no result, or only a very transient one. We have on record 9 cases treated by oöphorectomy plus thyroid, and in 3 the cancer disappeared more or less completely. The first patient became ill 2½ years after the oöphorectomy, probably from intrathoracic trouble, which seems to indicate recurrence. Boyd concludes that the evidence in favor of thyroid is not strong. [Beatson's suggestion was made because he believed there is, up to a certain point, similarity or identity between lactation and the formation of cancer of the breast. In each case there is an enormous production of embryonic epithelium. In lactation this undergoes fatty degeneration; in cancer it does not, but, on the contrary, penetrates the ducts and disseminates. Anything which could cause fatty degeneration in epithelium might cure cancer by causing it to degenerate. The belief that oöphorectomy might do this arose from the observation that if a lactating cow is spayed it will continue to give milk indefinitely. The theory Beatson now suggests of the cause of cancer is as follows: In the process of development the body-cells do not lose the reproductive power they possessed early in embryonic life. Healthy ovaries hold this power in check. If the control is lessened because of ovarian changes leading to altered secretion or migration of ovarian cells, then a portion of the cells are irritated by ovarian secretion or one cell which catches up and holds some ovarian cells might become cancerous. Beatson[1] has recently made some experiments to determine what the influence is which causes cells to proliferate. He implanted a portion of the right testicle of a rabbit in the subcutaneous tissue. Four months later the animal was killed and no remains of the testicle were found. He inoculated a portion of human ovary from a cancerous patient; a portion of cancerous human breast into a testicle; a piece of epithelium from a human uterine cervix into a testicle, and a portion of the same tumor into an ovary; he transplanted a piece of testicle into subcutaneous tissue, and then inoculated a testicle of the same rabbit with a piece of cancer from the human breast. The results in every case were negative.]

Stanley Boyd[2] presents a study on **oöphorectomy in treatment of cancer of the breast,** tracing the further history of his reported cases and adding 2 others. He considers 7 cases of his own and 5 collected cases. In these cases no thyroid was given until it seemed certain that the effect, if any, of the oöphorectomy was exhausted. It seems impossible to doubt that in some cases the removal of the ovaries does cause the disappearance of cancer.

Is oöphorectomy a justifiable mode of treatment? This can only be settled when we have had reported a sufficient number of cases to determine in what percentage it acts favorably, and also determine the duration of the relief. Boyd can find mention of only 15 cases, including his only 7, and in many of these the details given are very scanty. Full notes of all should be published. In coming to a conclusion, we should remember that ordinarily oöphorectomy is one of the simplest of operations; that the mortality is extremely small; that the value of the ovaries to a woman with cancer is greatly reduced; and that the injurious effect upon mind or body of their removal has never been definitely proved. He sums up his 7 cases thus: The beneficial effect was undoubted in 2 cases; it was probable in 2 cases; it was absent in 3 cases. If we take the group of failures, we notice that it contains the only 2 instances in which oöphorectomy was performed after the climacteric. These 2 cases, however, do not prove the uselessness of oöphorectomy after the climacteric. In the face of the 15 collected cases, 4 show that the relief was worth obtaining, and in 2 other cases there was some benefit conferred. He cannot dispute Cheyne's statement that the effect of the operation is transitory, and that in many cases no effect is produced. Cheyne's opinion, however, is based chiefly upon 2 cases in young women. To explain the failure to act in some cases, Boyd suggested in his first paper that the internal secretion of the ovaries may vary, and that only when it is varied in some unknown way does it favor the growth of cancer. It is conceivable that this variation in the secretion may occur more commonly after 40 years than before. Such evidence as we possess tends to show that the ovary is not the exciting cause of cancer, but only the predisposing cause. We know that the younger the patient the more severe the cancer is likely to be. Resistance to cancer seems to increase with age, and Cheyne decides that oöphorectomy is useless unless it can control cancer under the most difficult possible conditions. Boyd thinks that oöphorectomy may be of value as a palliative operation. There is little evidence that thyroid treatment has any influence on the disease.

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[1] Brit. Med. Jour., Feb. 15, 1899.

[2] Ibid., Feb. 4, 1899.

J. Collins Warren[1] discusses the question of the **curability of cancer of the breast,** presenting the records of 72 cases, of which 26 patients are alive and 38 are known to have died. Of the latter, there were 2 cases in which death occurred from other diseases than cancer, and long after the danger-limit of recurrence had been passed. Of the 26 living patients, there are 3 who now have recurrence of the disease and 4 who have had recurrence, but remain well at the present time. In 50 cases in which recurrence took place, there were 34 local recurrences, and there were only 8 in which the area of operation remained healthy. Such statistics point to the great importance of the radical removal of a large portion of the cutaneous covering of the breast and of the subcutaneous fat for a considerable distance round the gland, of the pectoral muscles, and of the axillary contents. In only 1 of the successful cases was there a dissection of the supraclavicular glands. Warren has 4 times operated upon the neck for infected glands, and in each of those cases the original operation-field has remained healthy for 4 years. At the present time he explores the posterior cervical triangle in all cases, although in the majority he has failed to find disease. His statistics show that the disease is most frequent in the upper and outer quadrant of the breast. In 9 cases it was not possible to learn the date of recurrence; but of the other

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[1] Boston M. and S. Jour., Aug. 25, 1898.

41 cases, in 37 there was recurrence during the first 3 years, and of the remaining 4 cases 2 recurrences were between 3 and 4 years and 2 between 5 and 9 years. It seems probable that many cases reported as unusually late recurrences are cases which have not been carefully examined, and the recurrence existed long before it was discovered. The patient's word is taken, and suddenly a generalization of the disease shows the true condition. Every case should be examined by a competent surgeon at the end of 3 years; and if he fails to find recurrence, there is probably not 1 chance in 100 that the disease will ever show itself again. Of 55 cases, 30.9% have passed the 3 years' limit. It should be remembered that the early operations were not nearly so radical as the later ones. If we consider the cases operated upon since Jan. 1, 1893, we find that 36.3% have passed the 3 years' limit. These are not selected cases. Many of them are hospital cases, and many of them malignant and advanced cases of the disease. There are 12 private cases with 41.6% free from recurrence at the end of 3 years. Adding his statistics to those of Dowd, we find 199 cases with 71 cures, or 39.6%. This includes Rotters's series with 50%, including only 15 cases; and Cheyne's, with 57%, including only 33 cases. Warren's statistics also show that medullary cancer is far more apt to recur than is scirrhous.

Henry T. Butlin,[1] in a clinical lecture, strongly maintains the curative power of **Halsted's operation for cancer of the breast.** Of the 33 operations in which he has performed Halsted's operation, only 13 cases are available for a report, and of these 9 were alive and well at periods of from 3 to 4 years after the operation.

Halsted[2] discusses the **operative treatment of cancer of the breast,** and says that he has made his operation more radical of late. He almost invariably clears out the supraclavicular region, justifying such action by the fact that in 34% of cases of cancer of the mammary gland the disease was found to extend to this region. It is not necessary to divide the clavicle. The dissection starts at the junction of the internal jugular and subclavian veins, and this point is exposed by a vertical incision at the posterior border of the sternomastoid muscle. He removes both the pectoralis major and the pectoralis minor muscles, and thinks it likely that he will come to remove the contents of the anterior mediastinum. His operation requires from 2 to 4 hours to carry out, and he makes it practically bloodless. Of 76 patients operated on over 3 years ago, 31 are now living without evidence of local recurrence or metastasis. Of 10 patients who died more than 3 years after the operation, only 1 showed local recurrence. Thus, over 52% of his patients lived more than 3 years without either local recurrence or metastasis.

W. Watson Cheyne[3] reports further as to the result of **operations for cancer of the breast.** He presents a record of the present condition of the 61 cases that he previously discussed. In his former paper he mentioned 21 cases that had passed the 3 years' limit. At that time recurrence had taken place in 9, while 12, or 57%, had remained well. Of these 21, 11 were at that time alive and well; 1 had died from bronchitis without any trace of recurrence. At the present time 9 of these cases are known to be alive; 1 has died, and the cause of death is stated to be hemorrhage from cancer of the intestine; there was no recurrence in the region of the breast. Thus, of the 27 patients who had no recurrence at the time of his last publication, 18 are still alive and well without recurrence. In other words, of the 37 patients who lived after the operation and whose fate could be traced, 19, or over 50%, remain free from recurrence. This gives a total in the 61 cases of 30 patients who remained free from recurrence. The results in cases in which they could be ascertained show that 51% of the patients remained alive and well more than 3 years after the operation. He then presents the records of 38 recent cases, in which from 1 to 3 years have elapsed since the operation. Of these patients, 20 remain well without recurrence. The total is 99 cases, in which from 1 to 9 years have passed since the operation; and of these, 56 have had no recurrence. There has been absolutely no selection of cases in this list, and he has only refused to operate on patients who were extremely weak or in whom it was impossible to remove the disease because of internal deposit or external deposit in situations which forbade removal; for example, the ribs or the glands back of the sternomastoid. In doubtful cases of cancer of the breast the diagnosis should be confirmed by exploratory incision—that is, the swelling should be excised along with an area of apparently healthy tissue, and should not be cut into until it is removed from the body and from the seat of operation. We thus avoid sowing the wound with cancer-cells, which might grow. It is, of course, probable that in carrying out this excision we shall cut across lymphatic vessels containing cancer-cells, but these cells will be few and more adherent than in the original growth. Cheyne insists on the necessity of free removal of the skin, carried out quite independently of the question of the closure of the wound. However small the growth, all the skin over the breast should be taken away; and when the tumor lies on one side of the breast, special incisions must be made around it, as shown in the accompanying figures (Figs. 3–7). The drawings represent the virgin breast, and in a large and pendulous gland the lines must be much farther apart. The skin-incisions must not be made to go straight down to the muscle, but the skin and just enough fat to enable it to retain its vitality must be dissected up, and the muscular fibers must not be exposed at this time. The dissection is carried to just below the clavicle above, beyond the middle line in front, over the origin of the abdominal muscles below, and over the edge of the latissimus dorsi muscle behind. With this undermining of the skin and the removal of the fat with the outlying lobules of the breast and the lymphatics and vessels contained in it from the skin we can usually succeed in bringing the wound together, although it may be necessary to skin-graft. We must remember that the breast extends far beyond any part that can be felt by the fingers. The pectoral fascia must invariably be removed, and if the whole great pectoral muscle is not taken away, at least a superficial layer of it must be dissected off. Cheyne takes away the whole of the muscle only when there is evident disease of the muscle itself. He does not believe that it is necessary to remove the whole of the pectoralis major muscle or the pectoralis minor muscle, although we should, of course, remove the fascia from the pectoralis minor muscle. It is, of course, necessary to remove the glands with the utmost care. The lymphatic infection in a breast-case may follow 2 lines. The most common course is for the infected glands to run up

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[1] Brit. Med. Jour., Dec. 3, 1898.

[2] Ann. of Surg., Nov., 1898.

[3] Lancet, Mar. 18, 1899.

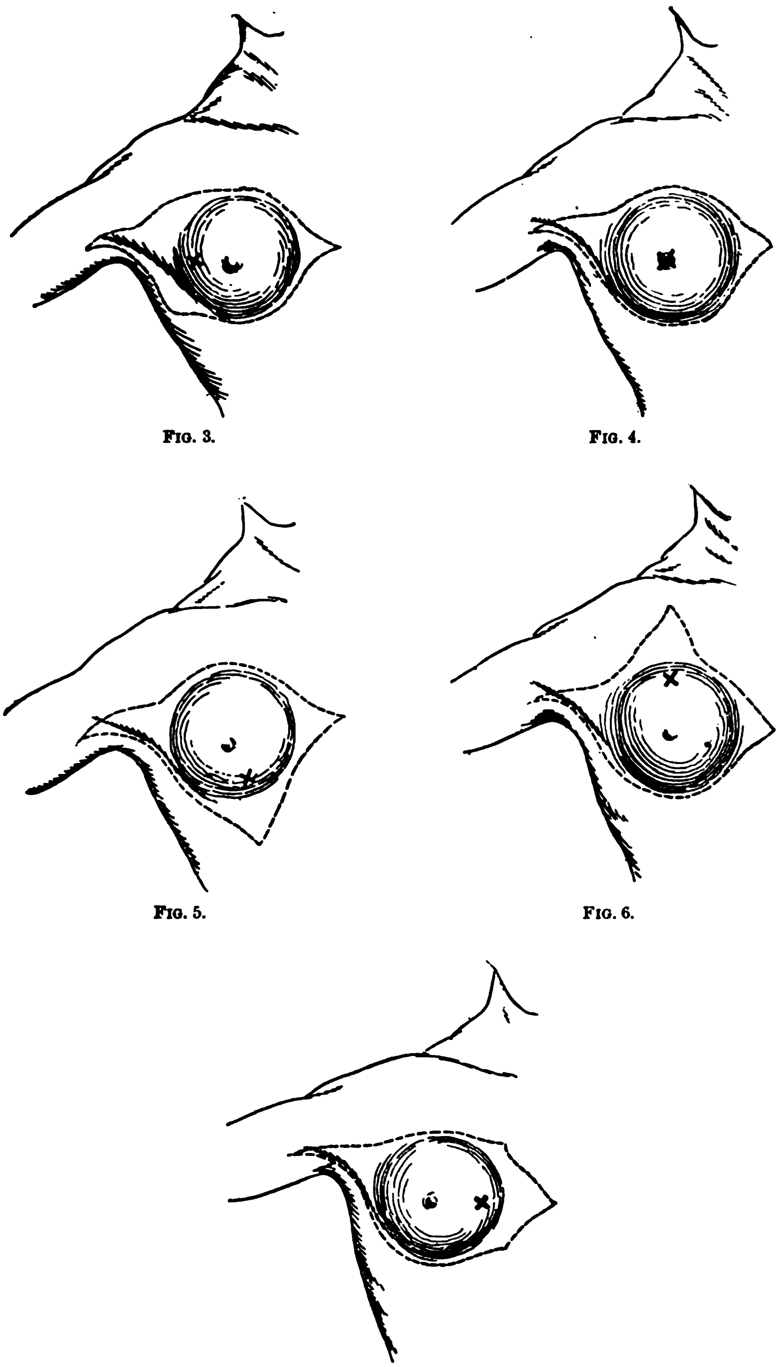

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.

FIGS. 3-7.—Cheyne's various incisions for removing the mammary gland (Lancet, Mar. 18, 1899).

in the immediate neighborhood of the axillary vein, and generally toward the pectoral side of it to the apex of the axilla, and thence to the root of the neck in front and probably into the anterior mediastinum. A second course is upward in the fat behind the vessels to the posterior part of the triangle of the neck. This last is a rare occurrence. Cheyne does not clear the posterior triangle of the neck if he detects no enlargement there, unless he finds that in the fat behind the vessels running up in that direction there are enlarged glands. In such a case he assumes that the course of the disease is toward the posterior triangle, and therefore the triangle should be cleared out; but when he does not find such evidence, he feels it is unnecessary to prolong the operation and increase the shock. As a matter of experience, he has never seen a recurrence in the glands of the posterior triangle. Cheyne is inclined to doubt whether it is worth while operating on a patient in whom there is marked enlargement of the cervical glands. It is not a positive contraindication, provided the patient is in a condition to stand a prolonged operation; but it is hardly possible to believe that in such a case any operation will prevent recurrence. In regard to the after-treatment we should follow the advice of Cotterell, and not fasten the arm to the side, but fix it at a right angle to the chest by means of a special splint. This saves a good deal of contraction and subsequent immobility in the arm.

ANESTHETICS.

Henry J. Garrigues[1] has made some clinical observations in regard to **general anesthesia by the Schleich mixture.** He says that with any kind of anesthetic we must take into consideration—first, safety; second, speed; third, the patient's comfort; fourth, simplicity; and fifth, economy. The safety of the new method can be proved only when it has been used thousands of times. So far we can state that no death has been reported from the use of the mixture. Like all other anesthetics, however, it contains an element of danger, for we cannot make that profound impression on the brain which is necessary to abolish sensation without coming dangerously near to paralyzing the respiratory centers. He thinks, however, that the new anesthetic is less dangerous than any he has hitherto known, and in regard to speed it ranges between chloroform and the A. C. E. mixture. It greatly contributes to the patient's comfort. We used to see patients lying for hours leaning over the vessel destined to receive their vomit; we find them now lying quietly on their backs, or see them sit up or leave the hospital in a short time without needing a companion. This new anesthetic can be given on an Allis inhaler or on the ordinary cone made of a towel and paper. The mixture can be used in every case in which general anesthesia is not contraindicated. Garrigues has used it on patients from 10 to 80 years of age, of whom 3 had heart-disease, 4 had lung-trouble, 7 had albuminuria. None of these was made worse by the anesthetic. In not a single case did albuminuria appear when it had not existed before. One alcoholic was anesthetized without trouble. Many of these operations were difficult and required much time. In the beginning he followed Schleich's rule, and chose a solution the boiling-point of which was proportionate to the temperature of the patient; but he soon found that he could anesthetize a fever patient as well with the weaker solution. He therefore now uses No. 1 nearly exclusively. No. 2 solution was only used once, and No. 3 was used in 6 cases. In 3 cases he began with No. 1 and changed to No. 3 because the anesthesia was not deep enough. He makes it a rule to begin with the weakest solution in every case, and if in 10 minutes anesthesia is not produced, he substitutes the strongest. The average time necessary to anesthetize has been 6 minutes; the minimum 2 minutes and the maximum 17 minutes. There is remarkably little excitement before unconsciousness is obtained. There is little accumulation of mucus in the mouth and throat. Schleich claims that there is no cyanosis by his method. Garrigues has seen slight cyanosis in 3 cases and moderate cyanosis in 3. One of these patients was in the Trendelenburg posture and another in the knee-chest position. There is much less vomiting than when pure ether or chloroform is used. In 27% of the cases there was slight vomiting; in 2 moderate vomiting; 1 vomited for an hour and a half, and in another case there was considerable vomiting. In many cases the apprehension regarding the approaching operation caused frequency of pulse, which gave way to a normal pulse when the anesthetic was given. In some cases the pulse was more frequent at the end than at the beginning, and in a large number of cases it was less so. There is a tendency to a slight diminution in volume. The real danger lies in its influence on the respiration. The frequency of respirations was invariably increased, commonly to between 20 and 40 per minute. In 3 cases there was arrest of breathing, which yielded to artificial respiration, inhalation of oxygen, and hypodermic injection of strychnin. The respiration must be watched most carefully. We must take as a warning of danger, not only deep and frequent respiration, but also slow and superficial breathing, which is still worse. Either of these conditions demands immediate intervention, discontinuance of the anesthetic, and employment of the usual remedies. In nearly all of these cases the pupils were contracted; in 2 they were dilated, and in 5 they were alternately dilated and contracted. Schleich says that when the pupils are dilated the cone should be removed, but this would not have been possible in the cases in which they were dilated all the time. Nevertheless, dilatation of the pupils is an ominous sign. One of the greatest advantages of the method is the rapidity with which consciousness is recovered, the average time required being 15 minutes. Garrigues concludes from this study that the mixtures are easily taken; that they may be used in all cases in which general anesthesia is not contraindicated; that the anesthesia can be quickly induced, and can be maintained with small quantities of the fluid; that there is little accumulation of mucus, little vomiting, scarcely any tendency to cyanosis, no evil effect on the kidneys; that the heart is only slightly weakened; that there is some danger in the respiratory sphere, though not so much as from ether or chloroform. He recommends the mixture for general use.

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[1] Med. News, Nov. 12, 1898.

H. Rodman[1] maintains that the **Schleich method for general anesthesia** is not a success. He made his experiments in the Mount Sinai Hospital. Solution No. 3 was the one chiefly used; No. 2 was employed for patients with serious heart-trouble, and No. 1 for children under 10 years of age. He used Schleich's mixture in 700 cases. Most patients say that it is not unpleasant to inhale, and it is preferred to ether, though not to chloroform. It requires from 15 to 20 minutes to induce anesthesia. The mask which it is necessary to employ is a great disadvantage, as it requires saturation at the beginning of the anesthesia, and the fluid is apt to run upon the face, causing burns. There is a stage of excitement; but it is less marked than that from ether or chloroform, and the general relaxation which ensues is more marked than with ether. The reflexes are lost early, especially the conjunctival reflex, and the anesthetist is thus deprived of an important safeguard. The patient's pulse remains slow during the anesthesia, and in most cases cyanosis ensues with diminished respiration and dilated pupils. At this stage, if the anesthesia is not carefully looked to, the cyanosis increases, the respirations become shallow and infrequent, the pulse rapid and of low tension, and the patient stops breathing. This condition was noted in a half-dozen cases. After the discontinuance of administration patients gag and vomit almost to the same extent as with ether or chloroform. The patient does not awake any sooner from the mixture than from ether or chloroform. Studies show that it tends to produce evil effects on the lungs and kidneys just as much as does ether. Several of the patients developed bronchitis, which in some instances was followed by pneumonia. In at least 3 cases in which the urine was negative before operation, after operation it contained albumin and casts. Rodman contends that the solution does not hold a position between ether and chloroform, but one below both of them. It is not less free from danger than ether and chloroform. It is a strong respiratory and cardiac depressant, and produces the same evil effects on the lungs and kidneys. Chloroform can be given alone more scientifically and with greater exactness than when in solution with the other elements. The only advantage possessed by Schleich's fluid is that it is not unpleasant to inhale, although it is often disagreeable to bystanders. With ether the unpleasant effects on the patient when he inhales it can be modified by giving first a few whiffs of chloroform. It is not probable that the mixture can be given safely to individuals with heart-disease. The method has been practically abandoned in the Mount Sinai Hospital.

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[1] Med. Rec., Oct. 1, 1898.

R. Lehman[1] speaks of what he calls the **danger-signal in chloroform.** He says that if the patient keeps his eyes wide open or partially open during the narcosis, and opens them again whenever the surgeon closes them, some difficulty, either slight or serious, may be expected. This phenomenon was noted 21 times in 329 cases, and in each case there was either excessive vomiting, cessation of respiration, asphyxia, syncope, or prolonged excitement.

Arthur Neve[2] writes on the use of **chloroform in India** in contrast to its use in England. He says that in England, year by year, more deaths are reported under chloroform, and he inquires, Is the drug more fatal than formerly, or is it given by more dangerous methods? Are we to rely for a conclusion on experiments upon the lower animals or upon clinical evidence? Deaths from chloroform in India are extremely rare. He has been able to collect the records of 3 deaths out of 78,407 administrations (1 death in 26,000 cases). The open method by towel or lint mask is usually employed in India, although in some of the hospitals Junker's inhaler is used. Chloroform is usually given by students or other unqualified assistants. We may account for this immunity in various ways: 1. Difference of constitution. But we must remember that the patients are of different races; thousands of Europeans are annually anesthetized, and among the Indian nations themselves there are more racial differences than among the nations of Europe. One thing is in their favor, however: they have not been taught to fear chloroform as many of our countrymen have. 2. Diet. The food of the races of India differs widely. Far less meat is used than in England; but many of them, especially the Hill people, consume as much meat as the inhabitants of southern Europe. 3. Stimulants are far less used than in northern Europe. The great majority of the peasantry are Moslems, and hence total abstainers. The others, even if they drink only moderately, require more chloroform than abstainers, and often struggle or shout. 4. Narcotics act in a similar manner to alcohol. Whenever opium or Indian hemp is used, more chloroform is required and the stage of excitement is more marked. 5. There are two noteworthy conditions of administration: The air of the operating-room is always fresh and no artificial light is needed, so there are no noxious products from bad ventilation or the combustion of chloroform-vapor. The thermal conditions, as a rule, are exceedingly favorable. Many years ago Neve's attention was drawn in Kashmir to the greater ease with which anesthesia is produced there during the summer months than during the winter months. In a cold operating-room anesthesia is better induced if we warm the chloroform and the towel prior to administration. Not long ago Sir Benjamin Ward Richardson noted that chloroform acts better in a temperature raised to summer-heat, while it is slow in action if the air is cold, and it is unsafe even to the healthiest animals if the air is moist as well as cold. This view was also held by Clover. It is claimed that chloroform is safer in southern China than in northern China; and that it is far more used in the southern States of America than in the northern. The only 2 recorded deaths in India during last year occurred in very damp climates; and the only death recorded this year occurred in cold weather. If the air is cold and the chloroform cold, it will vaporize slowly unless warmed by the breath of the patient, who will thus inhale a vapor of varying strength. In warm weather it is vaporized evenly and eliminated evenly. The important lesson is the necessity of even and regular inhalations. Neve thinks that the pseudoscientific apparatus which are arranged to give chloroform by accurate dosage are dangerous, because they offend against the cardinal principle of safe administration, which is to maintain the respiratory channels free from obstruction and to give plenty of fresh air with the vapor. He always measures the amount used, and pours a known quantity, as a rule 30 minims, at regular intervals upon the towel, closely watching the respiration and the pupils. He gives as an average 5½ drams to each case. His conclusions are as follows: "1. There is considerable evidence that in India the mortality from chloroform does not exceed 1 in 8000 cases, and in some of the largest institutions it is less than 1 in 20,000 cases. 2. This safety does not appear due to any special constitutional condition of Indian races, and but little to their habits. 3. It is probably due entirely to the warm atmosphere, which favors the rapid action of the drug and its rapid elimination. 4. To obtain similar safety in this country, it would be advisable to assimilate the conditions of administration: (*a*) To operate in well-ventilated rooms, in a temperature not below 70° F. (*b*) To observe the cardinal rules so long taught (but often not observed)—namely, to produce anesthesia gradually; to dilute the chloroform with plenty of air; to watch the respiration closely; to test the corneal reflex, and observe the pupils and color of the patient; to keep the respiratory channels free from all obstruction; and to keep the patient in a recumbent position. Never to 'pile on' chloroform in case of struggling, but to give more fresh air."

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[1] Sem. méd., Nov. 2, 1898.

[2] Brit. Med. Jour., Nov. 5, 1898.

D. H. Galloway[1] records a case in which death occurred a half-hour after chloroform-anesthesia. The patient had a fibroid tumor of the uterus. After chloroform had been given for 5 minutes, dyspnea and tachycardia were noted. The anesthetic was removed and the operation abandoned. The patient apparently recovered from the anesthetic for 20 minutes, when dyspnea suddenly occurred and death followed. Postmortem examination showed an aneurysm of the innominate artery and aorta. [It is usually said that if the circulation and respiration are in good condition 5 minutes after the withdrawal of the anesthetic, the patient is safe. Galloway's case proves that the statement is not absolutely true.]

F. W. Hewitt[2] has made a study on the human subject as to the effects produced by the administration of definite mixtures of **nitrous oxid and air** and of **nitrous oxid and oxygen.** His conclusions are: 1. When pure nitrous oxid is administered certain phenomena arise which may be regarded as being either phenomena of anesthesia or phenomena of asphyxia. 2. The anesthetic phenomena of nitrous oxid, although apparently different from those of ether or chloroform, are in every essential feature similar. 3. The most conspicuous of the asphxyial phenomena are embarrassed and stertorous breathing, cyanosis, and anoxyemic convulsions; all these may be eliminated without interfering with the anesthetic effects of the gas by administering at the same time pure oxygen or atmospheric air. 4. There are other less obviously asphyxial phenomena: dilatation of the pupils, swelling of the tongue, and rapidity of circulation, which may be modified or prevented by similar means. 5. Pure nitrous oxid causes the breathing to become deep and quick, and at the end of about 60 seconds its rhythm becomes altered, either by obstructive stertor, anoxyemic convulsions of the respiratory muscles, or a combination of both conditions; if the administration is pushed far enough, the breathing would be arrested in one of these ways; paralytic arrest of respiration is very rare, and when it occurs depends as much upon cerebral phenomena from deficient circulation as upon the presence of nonoxygenated blood. 6. If we add air or oxygen to the gas, deep and obstructive stertor is not met with, and only gentle snoring occurs; if there is 30% of air or 13% of oxygen, respiration becomes noiseless. 7. The most marked cyanosis is encountered when from 3% to 6% of air or under 3% of oxygen is given with nitrous oxid; with pure nitrous oxid cyanosis may not have time to become marked, for the administration may be cut short by deep stertor. 8. Anoxyemic convulsions are apt to be greater with a small percentage of air or oxygen than with pure nitrous oxid; but as the percentage of air or oxygen increases, the convulsions decrease. 9. Reflex movements and movements of excitement are most likely to arise with pure nitrous oxid or with nitrous oxid with a small percentage of air, 3% to 7%; or with nitrous oxid with considerable percentages of air, 20% to 30%; or with oxygen, 10% to 20%; they are most likely to occur with mixtures containing from 12% to 16% of air or from 3% to 7% of oxygen. 10. Phonated sounds are most common when nitrous oxid is administered with a large percentage of air or oxygen. 11. The duration of available anesthesia is longest after the administration of mixtures containing from 3% to 11% of oxygen, and the maximum duration is attained with 7% mixtures; nitrous-oxid-and-air anesthesia gives a longer period than pure nitrous oxid, but the result is always uncertain. 12. The best results are obtained with nitrous oxid and oxygen, the next best with nitrous oxid and air, and the worst with pure nitrous oxid. 13. There is no one mixture of nitrous oxid with air or with oxygen that will successfully anesthetize every patient. 14. In giving nitrous oxid and oxygen we should have a regulating-apparatus which permits of the progressive increase of the oxygen from 2% at the beginning of the administration to 10%, according to circumstances; the longer the administration lasts the greater may be the percentage of oxygen administered. 15. The next best results to those gained by means of the regulating-apparatus are secured by the administration of certain constant mixtures: for adult males the best mixtures are those containing from 5% to 7% of oxygen; for females and children, those containing from 7% to 9% of oxygen. 16. The next best results are to be obtained by mixtures of nitrous oxid and air, from 14% to 18%. 17. It is clear that satisfactory anesthesia unaccompanied by asphyxial manifestations may be secured by these mixtures at ordinary pressures. 18. This last fact, at first sight, seems to destroy the asphyxial theory of nitrous-oxid anesthesia; but we are not justified in assuming that because no obvious asphyxial manifestations appear, that there is no interference with oxidation.

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[1] Phila. Med. Jour., Oct. 15, 1898.

[2] Brit. Med. Jour., Feb. 18, 1899.

L. Fuster[1] compares the dangers of ether and chloroform when given alone and of a mixture of 2 parts of chloroform and 1 part of ether. He believes the **danger of anesthesia** is inversely as to its completeness, because in incomplete anesthesia reflex irritation may cause syncope; hence anesthesia should always be complete. It is usually asserted that the anesthetic state is induced more quickly by ether than by chloroform; that vomiting is rarer; that primary syncope is almost unknown; that whereas secondary syncope may occur, warning of its onset is afforded by arrest of respiration; and that tertiary syncope is more common with ether than with chloroform. The above are the commonly accepted opinions, with which the author disagrees. He states that when chloroform is given by the drop-method the anesthesia is obtained more quickly than when ether is given, and that vomiting is very frequent after ether; he believes that primary syncope may occur with ether; and he thinks an argument very greatly against the use of ether is the occasional occurrence of tertiary syncope. In the clinic of Tédenat for the past 5 years ether, chloroform, and the A. C. E. mixture, and finally the mixture of 2 parts of chloroform and 1 part of ether freshly made, have been employed. No special inhaler is required to give this last-named mixture, a wire frame covered with flannel being employed. The anesthetizer waits until the patient is breathing regularly, and pours 4 or 5 drops at a time on the inhaler, and when these evaporate, 6 or 8 more, pouring them on at the moment of inspiration. During the first minute 2 or 3 such doses are given; and if the patient takes the anesthetic well, 3 or 4 more like doses may be given in the second minute; usually at the end of the second minute the anesthesia is sufficiently deep for the operation to begin. If, when the knife enters the tissues, evidences of pain are shown, 6 or 8 drops more of the anesthetic are given when the next voluntary inspiration occurs. Fuster has employed this mixture on all varieties of subjects, and in the great majority of them anesthesia was obtained in about 2 to 3 minutes; and it was often kept up for a long period by adding from time to time 3 or 4 drops of the mixture. There was rarely any excitement, very frequently no vomiting, and circulation was well maintained.

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[1] Nouv. Montpellier méd., July 31, 1898.

The London Society of Anesthetists[1] discussed the **choice of an anesthetic.**

E. F. White said that **nitrous oxid is the safest,** and ether is the next in point of safety. Under ether 1 patient in every 16,000 dies; under chloroform 1 patient in every 3000. In a healthy individual there is practically no risk from ether; chloroform not unusually proves fatal. When a patient is under ether, there is no reflex shock as the result of the operation; but this is not the case under chloroform. Prolonged anesthesia always adds to shock. If ether is given before chloroform, some of the dangers of the latter are obviated. The A.-C.-E. mixture is not reliable. Children and old people take chloroform better than adults, but children occasionally succumb. If ether is properly given to children, it is very well tolerated. White has given ether to a child only a few weeks old. In children he often gives chloroform and follows it by ether. Ether can be given to the aged when there is no organic lung-disease, the ether being given slowly, as little as possible being administered. If chronic diseases of the lung exist, he uses ether, if possible, because he thinks chloroform causes as much trouble as ether; but in acute lung-trouble chloroform should always be preferred. In heart-disease ether should be given instead of chloroform, except in aneurysms, in which condition chloroform is preferable. In abdominal surgery we should have a light anesthesia by means of ether. In brain-surgery and in ophthalmic surgery we should use chloroform with or without morphin. In mouth-operations begin with gas and ether and continue with chloroform. This method is very valuable in removing postnasal adenoids. In thyroidectomy he gives ether instead of chloroform.

Edmund Owen said that he liked chloroform, but recognized its dangers. He had noticed that people with the least experience are apt to give anesthetics with the least hesitation. He believes that the **A. C. E. mixture is dangerous,** and he thinks that in children cocain is an extremely dangerous drug. Owen said that the operations of staphylorrhaphy, tonsillotomy, and the removal of glands from the neck are especially dangerous in children from the point of view of the anesthetist, as children not infrequently die from shock after they have passed the danger of reflex heart-failure.

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[1] Lancet, Jan. 7, 1899.

A. E. Barker said that **chloroform** is the best anesthetic **for prolonged operations,** especially abdominal operations. One of the dangers of surgery is the surgeon, and the anesthetic that makes surgical manipulation easiest gives the patient the best chance from the surgeon's point of view. He believes there will be a more general adoption of cocain as an anesthetic in major surgery.

Herbert Allingham said that **ether** is the safest anesthetic, especially **in rectal surgery,** in which there is great danger of reflex shock, and in which deep anesthesia is required. In abdominal section chloroform is the more comfortable agent; but in rectal operations it is the more dangerous one.

Tyrrell said that many cases of so-called ether-blueness are not due to the ether, but to an imperfect supply of oxygen.

Silk said that in selecting an anesthetic the following factors are important: The special knowledge and skill of the anesthetizer, the duration of the operation, and the posture of the patient. In a very young child he gives chloroform. In a child from 3 to 12 years of age he gives the A. C. E. mixture. In a person from 12 to 60 he gives ether; and in a person over 60 he gives the A. C. E. mixture or chloroform. In the fat and plethoric he likes the A. C. E. mixture. In acute lung-troubles he gives chloroform. When the lung-trouble is not acute he gives the A. C. E. mixture, and subsequently increases the proportion of ether. Uncompensated heart-disease and atheromatous arteries are contraindications for ether. In renal diseases and in operations on the head and neck he gives the A. C. E. mixture. In abdominal operations involving great shock he gives ether. Many **complaints in regard to ether** in abdominal cases are due, in fact, to the difficulties of the operation rather than to the anesthetic; but in such operations everything should be done to avoid inconveniencing the operator.

This discussion was continued at the January meeting of the Society.[1] Henry Davis said that in the **choice of an anesthetic** the safety of the patient must be the first aim. He likes to begin with gas and ether, which mixture steadies the patient and enables him to withstand shock better. Later he changes the anesthetic if it seems desirable. In an operation upon the upper air-passages he uses gas and ether; and when the operation is prolonged continues with chloroform, even if the patient is sitting up. For an abdominal operation gas and ether suffice. Chloroform is often requisite to produce necessary muscular relaxation. In alcoholics gas and ether often do very well; but in some cases chloroform is required. Ether is contraindicated in heart-disease with serious effusions and in diseases of the kidneys.

Warrington Haward maintained that ether when properly given is just as suitable for children as for adults, and statistics show that **ether is the safest anesthetic.** Haward thinks that the most important point of view in regard to an anesthetic is not that of the surgeon, but that of the patient, and this should invariably be *safety*. Above everything let the anesthetic be a safe one, and ether is certainly the safest anesthetic. That it is less agreeable than chloroform is a minor consideration. In abdominal surgery entirely satisfactory relaxation can be obtained by the use of ether. In operations on the throat the use of ether does not increase hemorrhage, as has been contended. It is quite true, however, that chloroform is more convenient in operations about the mouth, larynx, and upper air-passages. Cocain is very dangerous in children, although local anesthesia by cocain may be useful in cases of abdominal distention and intestinal obstruction with vomiting.

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[1] Lancet, Feb. 4, 1899.

Felix Semon said that in chronic stenosis of the upper air-passages chloroform is the preferable anesthetic, as **ether increases** the **dyspnea** and the liability to pulmonary complications. In operations for adenoids, chloroform, if well administered, is the best anesthetic. It allows a careful and not too hurried performance of the operation. Some of the fatalities which have occurred in these cases have been due to lack of manipulative skill on the part of the operators.

George H. Savage said that the **insane take various anesthetics with equal safety.** Chloroform produces the most marked after-effects, in some instances even mania. In violent mania chloroform is useful as a curative agent. The insane, as a rule, take anesthetics well.

Macnaughton Jones said that in 90% of the cases requiring an anesthetic **ether** is the best on the grounds of its **safety** and **quickness** of action. Unfortunately chloroform is given by anybody and everybody. Every practitioner considers himself perfectly competent to give it. It is only fair to say that collapse, which is often the result of the operation, is frequently attributed to the anesthetic. Dangers occurring under ether are easily recognized and remedied. Troubles occurring under chloroform are often irremediable, but many of them will be seen by the skilled anesthetist and counteracted by prompt action; hence the importance of an experienced administrator, whose knowledge enables him to choose the proper anesthetic and to give it in the best manner. In organic lung-disease, diabetes, and ophthalmic surgery (except in glaucoma), ether is to be preferred. In gynecologic operations and abdominal surgery nitrous oxid and ether may be given. In hysteria chloroform is preferable. In every case, however, the surgeon should place the facts of the case before an experienced anesthetist and allow him to select the anesthetic.

Stanley Boyd spoke of the **danger of chloroform** in the hands of the inexperienced, and asserted that ether is a safe anesthetic for children. He gives morphin before anesthesia and places the patient in the lateral position in operations about the mouth and nasopharynx. The restlessness of patients under ether during abdominal operations is often the result of hurried anesthesia, and can usually be prevented by care.

Eastes prefers **ether.** In shock, paralysis of the intercostals or diaphragm, degeneration of the heart, in cases with low blood-tension and in cases in which the patient is sitting up, chloroform should not be given. Nor should it be given as a rule in cases of abdominal or pelvic surgery. For adenoid operations he gives ether, but not nitrous oxid, as the latter causes congestion. Diabetics take ether and chloroform well. He thinks the A. C. E. mixture is useful and safe. He considers cocain very dangerous, especially for children.

Carter Braine gives the **A. C. E. mixture to children** under 6 years of age; after that age he uses ether. In cases of abdominal distention he gives A. C. E. mixture after preliminary lavage. In thyroidectomy he gives chloroform after a preliminary injection of morphin.

A. Lewis Jones[1] advocates in certain cases the introduction of **cocain** through the unbroken skin **by electrical osmosis,** and says that minor operations can be done very satisfactorily after this process has been carried out. Use a solution of 6 gr. of cocain (not the hydrochlorate) in 1 dram of guaiacol. Place a little of this mixture on a pad of blotting-paper and lay the pad upon the skin. The positive electrode, which consists of a flat metallic disk, is laid upon the paper. The negative pole is placed at an indifferent point. A current of 4 ma. is used. The solution has considerable resisting power, and it is first necessary to use from 10 to 15 cells; but in a little while the number of cells can be diminished. In 4 or 5 minutes anesthesia is produced, but beyond this time we must not continue, because the solution is caustic.

Isidor Dreyfus[2] combines Schleich's method of **infiltration-anesthesia** with the application of orthoform. He first infiltrates the tissues after the plan of Schleich, makes the incision, and powders the wound with **orthoform.**

Bagot[3] produces **local anesthesia** by a mixture of cocain hydrochlorate and spartein sulphate, believing that the action of spartein on the heart counteracts the depressing influence of cocain. He makes powders, each containing $\frac{3}{5}$ gr. of cocain and $\frac{3}{4}$ gr. of spartein, and dissolves 1 powder in 15 drops of boiling water, and another powder in 30 drops of boiling water. Fifteen drops of the weaker solution are injected into the area to be operated upon, and in 7 or 8 minutes the remaining portion of the weaker solution is injected. After the cut has been made the wound is touched with the stronger solution from time to time.

Reclus[4] summarizes the advantages of **eucain-B** as follows: (1) The solution can be sterilized by boiling; (2) the solution is stable and permanent; (3) it is much less toxic than cocain. He employs cocain in the strength of 1%, but makes the patient lie down for an hour or two after the operation. It is unnecessary to insist on this when eucain is given.

Heinzle,[5] in discussing **infiltration-anesthesia,** says that **beta-eucain** is the best drug to employ, the solution being of the same strength as the solutions of cocain generally used. It is far less toxic than cocain and is also less irritant. The solutions are stable and can be sterilized by boiling. The fluid, when used, should be of the body-temperature. He uses 1 part of beta-eucain, 8 parts of sodium chlorid, and 100 parts of distilled water. [Eucain-B is employed in solutions of 2%, which are sterilized by boiling. It produces as complete anesthesia as cocain and does it more rapidly, but the anesthetic state due to the former does not last quite as long as that produced by the latter. Eucain is less irritant than cocain. After the anesthesia of eucain has passed away there is often a decided burning sensation, which lasts for an hour or two. The drug is far safer than cocain. Braun says it is $\frac{1}{3}$ as toxic as cocain. Legrand says it is $3\frac{1}{2}$ times less toxic than cocain. Eucain is of great value, though it occasionally causes injurious hyperemia.]

Braun[6] maintains that it is both useless and dangerous to arrest the blood-supply by **Esmarch's method** as an aid to the production of **local anesthesia.** He believes that artificial ischemia does not affect the organs which convey painful sensations. It is true that the action of cocain in the tissues may be rendered stronger by the condition of anemia, because the absorption of the anesthetic is arrested. If local anesthesia follows the simple production of local ischemia, this condition is not due to the cutting off of the blood from the parts, but to injurious pressure upon the sensory nerves.

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[1] Clinical Jour., Mar. 8, 1899.
[2] Gaz. hebdom. de Méd. et de Chir., Aug. 14, 1898.
[3] Normandie méd., Nov. 15, 1898.
[4] Bull. méd., No. 26, 1898.
[5] Arch. f. path. Anat. u. Phys., Heft 3, 1898.
[6] Centralbl. f. Chir., No. 43, 1898.

Heinze and Braun[1] have been considering the various **local anesthetics used endermically** after the plan of Schleich. They find that an 0.8% salt solution with distilled water does not cause pain when injected, and does not affect the sensibility of the part. They believe that cocain is the most powerful of local anesthetics; but as eucain-B is about its equal in paralyzing the nerves and in not producing irritation, and as it has the advantage of submitting to boiling without change, they advise the following formula for infiltration-anesthesia: 1 gm. of eucain-B; 8 gm. of common salt; 100 gm. of water.

James B. Bullitt[2] produced **local anesthesia by carbonic acid gas.** His apparatus consists of a storage cylinder containing 20 pounds of liquefied gas. A small pipe is attached to the outlet of the drum, at the end of which is a hypodermic needle. In passing out through the needle the gas very quickly freezes the tissue, as does ethyl chlorid, than which it is much cheaper. [Centuries ago it was believed that the local application of CO_2 allayed pain, and Memphis stone was valued as a source from which this gas could be easily obtained. Bullitt's suggestion, however, does not seek to utilize any supposed anodyne effect of the gas, but simply to employ this agent as a cheap and satisfactory means of freezing a part.]

Haeker[3] has used **ethyl chlorid** as an anesthetic in 170 operations, it being inhaled through the Breuer apparatus. The anesthesia is rapidly induced, excitement is very rare, the anesthetic state last from 5 to 10 minutes, and the after-effects are very trivial.

Kofmann[4] believes that anesthesia can be very satisfactorily induced by the production of ischemia through the application of an **Esmarch bandage.** He applies the Esmarch bandage, cleanses and shaves the part, and does not operate until the area is entirely bloodless. In order to get complete ischemia, it is necessary first to constrict and then wait for a considerable time. [Such a plan is often painful, always at least uncomfortable, and we do not believe it is ever satisfactory.]

Aarousin[5] uses **cannabis indica** as a local anesthetic in dental pain. He employs the tincture diluted with 3 to 5 parts of alcohol, introduced into the cavity of the tooth on cotton, and also placed upon the gum.

L. Sternberge[6] reports on **aneson,** a new local anesthetic. It is a colorless solution, nontoxic and nonirritant, of which 17 gm. have been used without producing evil effects. Local anesthesia is obtained far more quickly than by cocain.

Luxenburger[7] reports upon the new local anesthetic known as **nirva-**

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[1] Virchow's Archiv, cliii., p. 466.
[2] N. C. Med. Jour., Sept. 20, 1898.
[3] Münch. med. Woch., Dec. 20, 1898.
[4] Centralbl. f. Chir., Oct. 8, 1898.
[5] Jour. de Méd. de Paris, Oct. 30, 1898.
[6] Klin. Therap. Woch., Sept. 25, 1898.
[7] Münch. med. Woch, Jan. 3, 1899.

nin. It is chemically similar to orthoform. A 2% solution is employed by the infiltration-method. It produces anesthesia which lasts for 20 minutes. The solution can be boiled without change, but this need not be done, because it is antiseptic. This anesthetic does not retard wound-healing and is not dangerous. Sometimes after the anesthetic effect passes off there is some smarting of the infiltrated area.

DISEASES OF THE ESOPHAGUS AND STOMACH.

Reitzenstein,[1] in discussing the subject of **esophageal diverticulums,** lays down the following rules for diagnosis: 1. There is obstruction to the passage of the sound, which obstruction does not give way as the sound continues to be pressed against it. 2. The chemical examination of regurgitated matter shows that it does not contain ferments nor free hydrochloric acid, and does contain organic acids. It may be possible to get a portion of a previous meal from the diverticulum, the most recently swallowed food having passed into the stomach. 3. It is necessary to make a diagnosis between idiopathic dilatation of the esophagus and a deeply placed diverticulum. A sound is employed, the sides of which are fenestrated to a high enough level to reach the diverticulum. A second sound is passed and water poured into it. If a diverticulum exists, all of this water can be siphoned out through a second sound. If there be idiopathic dilatation, no water will return. 4. Two hollow sounds can be inserted and differently colored fluids used; one passes into the diverticulum and the other into the stomach, and the fluids will remain distinct. 5. Illumination with Einhorn's lamp will show the opening of the diverticulum. 6. A skiagraph may show the diverticulum if the surgeon has first introduced a sound filled with shot or ground-up lead, or if the patient has first swallowed a fluid containing bismuth. 7. When the patient swallows it is often possible to hear the wash of the fluids in the diverticulum. 8. Take a small, solid sound, wrap its tip with plaster, and pass it into the stomach. Pass a second hollow sound down to the level of the diverticulum; pour a colored fluid into the second sound: if there is dilatation of the esophagus, the plaster will be colored; if there is a diverticulum, it will not be colored.

W. Joseph Hearn reported to the American Surgical Society (Chicago, June, 1899) an interesting case of **diverticulum of the esophagus.** The patient was a man, aged 52, who 16 years before had a severe attack of diphtheria, in which he coughed often and violently. Soon after this attack difficulty in deglutition was noticed, which gradually increased. In 1889 he consulted Hearn. At that time, in swallowing, there was bulging on the lower left side of the neck beneath the sternomastoid muscle. After taking food the sac became distended, and only liquid could be got into the stomach, and that with difficulty. Regurgitation of food was frequent, occurred often many hours after eating, and could be caused by bending forward or pressing on the pouch. A button-bougie was blocked 7 in. from the teeth. A Mercier instrument blocked if turned to the left side; but if turned to the right could be passed into the stomach. This patient refused operation. Some years later he again came under Hearn's care. The sac was larger, at times there were complete dysphagia and severe dyspnea. For a time he could sleep on the left side. Any attempt to sleep on the right side caused dribbling of fluid. Finally he had to sleep in a chair. The operation was performed in 1896. The sac was washed by having the patient swallow water, which was expelled by pressure. An acorn-bougie was carried into the sac. Ether was given. The sac was exposed and excised. The mucous membrane was closed with a continuous suture of catgut, the muscular layer with interrupted sutures of silk, and the other connective tissue with a row of silk sutures. The upper three-quarters of the skin-wound was sutured. Through the opening at the lower end gauze packing was inserted. There was no leaking. The wound healed in 12 days, and the patient was cured. [In the debate on Hearn's case, Maurice Richardson of Boston reported 2 cases in his own practice.]

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[1] Centralbl. f. Chir., July 16, 1898.

Van Hacker[1] considers the **esophagoscope** a very valuable instrument, aiding in the making of the diagnosis and often facilitating treatment. By means of this instrument the surgeon can usually discover any existing disease or inflammation or injury of the mucous membrane, and sometimes a new growth in a region of obstruction. Stenosis, dilatation, catarrh, pressure from outside, and foreign lodged bodies can be diagnosed by it. When using this instrument a portion of a growth may be removed for examination, an area can be cauterized, the opening of a constriction may be found, and dilatation may be practised. Van Hacker uses the straight tube of Mikulicz and reflected light. The mucous membrane is painted with a 20% cocain solution, the patient lies down, and the instrument is passed by the surgeon, not by its own weight, as would be done in the erect position. It is an advantage to conduct the examination in recumbency, as secretions do not flow into the pharynx.

Strictures of the esophagus and of the cardiac end of the stomach are considered by Lambotte.[2] In reviewing the treatment of cancer of the esophagus he discusses the value of catheterism, intubation, and gastrostomy. He thinks that catheterism is a dangerous procedure; that it is never effective; that it is often painful; and that it may cause perforation. If it is decided to employ the catheter, never use the ordinary olive-tipped instrument. He prefers an instrument that has a metal ovoidal tip in which a screw-thread has been cut. Such an instrument can be rotated through the stricture rather than pressed through it. Intubation is a better procedure than is repeated catheterization. We can introduce a metal tube and retain it in place. In some cases it can be introduced from the mouth by means of esophageal forceps. In other cases gastrostomy is performed, and the tube is pulled down into the stomach from above and fastened. Lambotte considers gastrostomy a very useful procedure; but he thinks that the opening made in the stomach should be much smaller than that usually advised—in fact, he makes an opening only the diameter of the head of a match. He opens the abdomen, fastens the stomach to the abdominal wall, and at the summit of the projecting portion of the stomach pushes in a trocar obliquely. When the operation is thus carried out there is no escape of stomach-contents, and nutrient injections can be readily given. The nutritive injection which he prefers consists of 125 gm. of bouillon, 25 gm. of sugar, and 2 teaspoonfuls of peptone. Further, he calls attention to the necessity of furnishing the organism with plenty of water by injecting it into the stomach and into the rectum.

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[1] Ann. of Surg., Sept., 1898; Beiträge z. klin. Chir., Band xx., Heft 1.
[2] Presse méd., Feb. 11, 1899.

W. Thelwall Thomas[1] reports 3 cases of **esophagotomy for foreign bodies.** He says that the operation is demanded when there is impaction of an irregular foreign body in the gullet, and he insists that the procedure should be carried out as soon as it is discovered that the foreign body is firmly fixed. The operation of esophagotomy is less serious than are repeated attempts to drag out the body. Cases are on record in which tooth-plates have been removed forcibly from the esophagus by means of forceps or coin-catchers, and the patients have died from cardiac failure or edema of the glottis. Forcible dragging out will lacerate the mucous membrane and possibly the muscle-tissue of the larynx as well as of the esophagus, and if the patient is under chloroform we can form no idea of the amount of damage being inflicted. The patient will be far better off if subjected early to a clean cutting operation. The first patient in Thomas's series died because of laryngitis and tracheitis with rapid failure, brought about by forcible attempts to drag out a tooth-plate while the patient was under ether. When this procedure failed the operation of esophagotomy was carried out. There was no subsequent leakage or cellulitis, but the patient died from cardiac failure following respiratory trouble. In the second and third cases operation was performed as soon as it was evident that plates were impacted, and recovery from operation was extremely rapid and satisfactory. Thomas believes that when a foreign body is found to be impacted by simple trial with the forceps, the coin-catcher, or the horsehair probang, esophagotomy should be performed as soon as possible before inflammation has occurred or ulceration has set in. At the conclusion of the report of his cases he makes the following remarks: 1. Sounding should be carried out by means of a metal-tipped probang, because an elastic gum bougie will pass such a foreign body as a tooth-plate without producing a clicking sound. 2. Prolonged attempts at extraction by forceps should not be made; esophagotomy is safer. 3. The operation should be performed early, before ulceration sets in. 4. The cut in the esophagus should be large enough to allow the surgeon to extract the foreign body without lacerating the edges of the mucous membrane. 5. Careful suturing of the esophagus should be carried out. The mucous membrane should be sutured with a continuous silk suture, and the muscle-tissue closed by a continuous Lembert suture of silk. 6. A glass drainage-tube should be carried from the skin to the esophagus. This is necessary, because otherwise the anterior margin of the sternocleidomastoid will cover the deep portions of the wound and prevent the escape of serum. The skin is then sutured up to the tube. 7. If the mucous membrane has been lacerated, use an esophageal feeding-tube. 8. Urge upon the general public the danger of wearing broken tooth-plates and the necessity of removing all dentures when intending to sleep.

M. Forgue[2] reports a case of **intramediastinal esophagotomy.** The child had swallowed a piece of money several months previously, and attempts to remove it through the mouth had failed. The skiagraph showed that the coin was caught at the level of the fourth intercostal

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[1] Brit. Med. Jour., Oct. 29, 1898.

[2] Gaz. des Hôpitaux, Oct. 27, 1898.

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space to the right of the vertebra. The surgeon decided to perform the operation of right thoracotomy. An incision was made over the angles of the ribs between the spines of the vertebræ and the inner border of the scapula. Portions of the fourth, fifth, and sixth ribs were removed. The parietal pleura was stretched from the chest-wall, when the edge of the coin could be detected with the finger. There was a great deal of venous bleeding; the coin was 3 in. from the surface, and it was deemed imprudent to open the esophagus; while efforts were being made to clear off the pleura the esophagus passed forward entirely out of reach. The child's breathing became so labored that the operation was suspended, and 12 days after the coin was successfully removed from the mouth.

John C. McCoy[1] reports a successful case of **external esophagotomy** for an impacted tin whistle in the esophagus. His conclusions are as follows: 1. A foreign body impacted in the esophagus for over 12 hours, especially if it is of a form known to have edges likely to inflict injury if the body is forcibly pulled upon, should be removed through an external incision. 2. The prolonged use of esophageal instruments is harmful, as they contuse and lacerate the esophagus, and thus lower the vitality and resisting powers of the tissues. 3. When the tissues have not been lacerated and the impaction has been short, the healthy tissue of the esophagus can be sutured with fine catgut and the external wound can be closed. This procedure was carried out in McCoy's case, although absolute primary union did not occur. 4. At an early hour after the operation, it is advisable to let the patient swallow small portions of sterile water, so as to cleanse the esophagus. It is usually unnecessary to feed by the esophageal tube or by the rectum. At the end of 24 hours liquid nourishment may be swallowed, and after each feeding a few sips of sterile water should be administered to cleanse the esophagus. In McCoy's case the esophageal wall was sutured with closely placed interrupted sutures of fine catgut, and the external wound was closed with interrupted sutures of silk. On the third day an opening was noticed at the lower angle of the wound, and, when the patient swallowed, some fluid passed out through this opening. The leaking was entirely remedied if firm pressure was made upon the wound while the patient took nourishment. This fistula closed in 7 days. On the sixteenth day the patient left the hospital perfectly able to swallow solid food.

Fenton B. Turck[2] discusses a new operation for **gastrostomy** and an operation for curetment of carcinoma of the cardia. He says that the operation of gastrostomy requires for its success two conditions: (1) That it shall be simple and safe; and (2) that it shall not be followed by leakage of the stomach-contents. Under modern antiseptic methods the operation is not perilous; but the prevention of leakage is another matter, and various devices have been adopted to prevent it. In all cases the valve or the sphincter principle has been adopted in one form or another, either directly, by means of folds of the stomach-wall, or indirectly, on the principle of the ureterovesical valve, by means of a long, oblique passage from outside into the cavity of the stomach. This last method is the favorite one, and can be carried out by making a fold in the stomach-wall, as was suggested by Witzel; by carrying the fistula obliquely through the stomach-wall, as in the methods of Andrews and Fischer; or by making a fold in the stomach-wall and carrying it obliquely through the tissues, thus making a canal, as in the Ssabanejew-Franck operation. The method of directly using folds of the stomach to act as sphincters or valves is illustrated by Kader's method and by the operation which Turck describes in this paper. Turck devised his method in 1894, and demonstrated it in his lectures in Feb., 1896. It consists in the production of a valvular fold in the passage to the stomach by infolding the stomach-wall. He takes a fold of the anterior wall from above downward and secures it for the distance of 1 in. by 3 stitches. A stitch is passed through the stomach-wall at the lower edge of this fold, and both ends of the thread are passed through a perforated trocar, which, with its cannula, is held transversely across the fold. The point where the stitch is inserted is the point where the trocar is to enter, and this thread is the guide for the trocar. The fold which was first made is stitched over the cannula, and another fold is stitched over this. The ring is sutured to the peritoneum and the posterior wall of the rectus fascia. The trocar is pushed into the stomach and withdrawn, leaving the cannula in place. The guiding-thread is withdrawn and the superficial wound closed, leaving the cannula *in situ*. This operation can be quickly performed, occupies less space on the anterior wall than some of the other operations, and makes a perfect valve, entirely preventing leakage. He has demonstrated these views repeatedly on the human cadaver and on the living dog. He has filled the dog's stomach with water and with air, and in neither case was there any leakage even under pressure. The plan of preventing leakage by making a valve similar to the ileocecal valve or the valves to the veins is claimed in only 2 or 3 of the methods that have been suggested by others. Fontain draws out a cone-section of the stomach, fixes it, pushes inward a fold of this portion, suturing it at the sides, opens the stomach-wall at the point of attachment of the forceps, and inserts the cannula; the cannula is thus sheathed in a miter-shaped valve formed by the folds of the gastric tissue and the contacts of the serous surfaces. Emanuel Senn draws out a large cone-section of the stomach, sutures it some distance below the apex with 2 purse-string sutures of catgut, and envelops these in a cuff of omentum. He fixes the apex of the cone in the parietal wound, makes an incision $\frac{1}{2}$ in. in length in the exposed portion, and inserts a rubber tube. He inverts the edges of the incision, and fixes them in that position by Lembert sutures, thus producing a valvular opening. This method is effective, but takes time. Turck claims that in this valvular method he occupies a position of priority. He discusses **curetment of carcinoma of the cardia.** He says that at best gastrostomy is a palliative operation, and it is desirable to continue feeding by the natural route, if possible, even in malignant disease. If we can relieve the cardiac stricture by gastrostomy, a desirable result is obtained. It is occasionally advisable to reduce the size of obstructive growths at the cardiac orifice of the stomach after gastrostomy, and this can be done by the use of a curet. For this purpose Turck employs a narrow cylinder, on the sides of which are inserted knife-edges at an acute angle and slightly oblique to the long axis of the cone. Its narrow end is guarded by an ivory bulb. Its broad extremity is inserted in a narrow socket attached to a revolving stem which is protected by a flexible tube. The instrument can be inserted in the abdominal wound, guided by external manipulation to the cardiac end, and then set in revolution. It removes tissue and enlarges the caliber of the esophagus. This instrument should only be used when the growth is sufficiently bulky to be safely bored away. The nature of the tumor and the rapidity of the growth have to be considered; but in certain cases its utility, he thinks, will be established. With a correct diagnosis it can be used with safety, and it acts like a dull rather than a sharp curet, and healthy tissue is not apt to be injured. [We consider this latter procedure to be highly dangerous and obviously useless.]

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[1] Med. News, Dec. 3, 1898.

[2] Brit. Med. Jour., Nov. 19, 1898.

A. Ernest Maylard[1] discusses the operation of **gastrostomy by the Kader-Senn method.** He thinks that this method is simple, can be rapidly performed, and has only to be more widely known to be almost universally adopted. He describes the operation in the words of the younger Senn and reports 2 cases. He thus sums up the advantages of this method: 1. It is extremely simple and safe and can be rapidly performed. 2. It is almost certain that there will be no subsequent leakage. 3. Because of the safety of the operation and the absence of any remote ill-effects its performance should be advised as soon as solids can no longer be taken. In connection with this point of urging an early operation we may add the advantage gained by the patient in being able to take more substantial nourishment and with less pain. This relief results from the rest which the diseased gullet derives from all the food being taken to the stomach by another channel. It permits the subsidence of inflammation about the seat of stricture, so that exudates are absorbed and spasm is diminished. The operation of gastrostomy, though only palliative, is likely to prolong life to a greater extent if performed early than when it is delayed until the period of necessity has been reached; in other words, if performed before and not after difficulty in swallowing fluids has begun.

Merklen[2] reported to the Société Médicale des Hôpitaux a case of **perigastritis.** The patient was a man, 40 years of age, who for several weeks had suffered from violent attacks of pain in the epigastrium, this pain radiating back of the sternum and to beneath the chin. He was suddenly seized with a violent pain in the left flank, accompanied with the signs of perforation of the stomach. There were previous adhesions, and peritonitis was thus limited and a subphrenic abscess developed. This abscess was opened and the man seemed to recover; but some 2 months later he again began to suffer from violent pains coming on 5 minutes after taking food, being increased by exercise and even by standing. They originated in the stomach, radiated back of the sternum into the arms and even the little fingers, thus resembling the pains of angina pectoris. These attacks lasted from 30 to 45 minutes. After he had suffered in this way for many months an operation was decided on. It was found that the stomach was surrounded with adhesions. These adhesions were separated, except the extremely dense chief adhesion, which anchored the lesser curvature of the stomach to the left hepatic lobe. This was the seat of the ulcer, and at this point the stomach-wall was greatly thickened. The patient seemed for a time to have been benefited by this operation, but in about a month the pains returned, differing, however, from the previous pains in the fact that they were brought on by walking or by standing; but were not brought on by food. This meant that peristalsis of the stomach did not cause pain, but that the standing posture, by dragging on the adhesion to the liver, caused pain, especially when the stomach held a weight of food. The patient discovered that he could bring the crisis to a termination by lying on his back. Another operation was decided on; the portion of the liver which was fastened to the stomach was found to be fibrous, and was removed by means of the cautery, and the hepatic wound was closed with sutures, and at the same time the gastric ulcer was resected. The patient was apparently cured by the operation. The author states that if, in spite of treatment, there is persistent pain, there is probably an induration in the gastric region. In perigastritis there are two sorts of pain, that produced by food and that produced by the erect posture. The latter is due to the fact that there is commonly adhesion to the liver. When the pain radiates to the retrosternal region, the cervical region, and the brachial region, we may be justified in concluding that there is an ulcer of the cardiac extremity causing adhesion to the solar plexus. The treatment in such conditions consists in separating and dividing the adhesions or in resecting the ulcer and inflammatory new formations.

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[1] Lancet, Aug. 20, 1898.

[2] Ibid., Feb. 18, 1899.

William J. Gillette[1] reports a case in which a physician while swabbing his throat with a probang accidentally **swallowed the brass wire,** and some 4 months later this wire spontaneously escaped by way of the ninth intercostal space.

Berg[2] describes 2 cases of that rare condition known as **volvulus of the stomach,** which consists of a twisting of the stomach on its axis. In both cases the patient was operated upon and cured.

A. Ernest Maylard[3] advocates **exploratory operation upon the stomach** in certain cases in which there are obscure and obstinate gastric symptoms. He says that in such cases prolonged medical treatment has usually been carried out. The all-embracing symptom of gastric trouble is dyspepsia, and it is significant of so many different complaints, that in the absence of any very distinct contraindication the tendency of medical men is to treat all who complain of dyspepsia on the conviction that the less serious troubles are present. There must be a period in some of these cases when the practitioner realizes that his treatment is a failure; and Maylard says that the harmlessness and simplicity of exploratory operation should induce the physician not to persist longer in fruitless efforts, but to persuade his patient that an operation might explain the symptoms, if not actually cure or relieve the complaint. Maylard asks, What can be more useless as regards permanent benefit—in fact, what can be more harmful—than continuous daily lavage of a stomach that has become permanently dilated either from obstructive pyloric disease or chronic defect in digestive function? Whatever good may follow the removal of fermenting products in the stomach, the amount of fluid which is thrown in has some deleterious mechanical effect in maintaining, if it does not increase, the dilatation. The dilated stomach will remain a source of persistent pain and discomfort, with attendant ills and dangers, until that dilatation is dealt with effectually, and relief cannot be obtained by either lavage or medication. In 1898 Kocher advocated the more extensive use of exploratory incision in doubtful cases of stomach-disease.

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[1] N. Y. Med. Jour., Mar. 28, 1899.

[2] Centralbl. f. Chir., Sept. 3, 1898.

[3] Lancet, Apr. 8, 1899.

Keen in the beginning of 1898 expressed the same view. Maylard, in his book on the *Surgery of the Alimentary Canal*, written in 1895, predicted that the time was not far distant when surgeons would think as little of exploring the stomach as they now think of exploring the brain. Mayo Robson by exploratory laparotomies has discovered certain obscure gastric symptoms to be due to adhesions of the stomach, the separation of these adhesions having brought about relief. The same surgeon has shown that exploratory operations have relieved pyloric obstruction causing dilated stomach, and the treatment of this obstruction has led to disappearance of the symptoms of tetany from which the patient suffered. Maylard reports a case in which he performed exploratory operation. The man was 55 years of age, and 2 years before had begun to suffer from pain in the back; the pain soon passed to the epigastrium, where it had remained continuously ever since. It was a burning, gnawing pain, just below the ensiform cartilage; sometimes passing through to the back; somewhat increased by hunger and often relieved by taking food. He never vomited, but suffered from flatulence. The bowels had always been costive. He had never passed blood. There was some tenderness, and the stomach was evidently dilated. He had lost considerable flesh; medical treatment had failed to relieve him. The abdomen was opened, and the anterior surface of the stomach with the bowels was examined with the finger, but no trouble was detected. The stomach was partially drawn out of the wound and its anterior wall incised, and the interior of the organ examined with the finger, but nothing abnormal was found. The exploratory incision was closed by a continuous Lembert suture and the dilated stomach was amended by taking a tuck in the stomach-wall, a longitudinal fold of the anterior wall being tucked in so as to approximate the two curvatures. The stomach was returned within the abdomen and the wound closed. The next day he began to vomit blood, and vomited at least 35 oz. during the day. The condition indicated free hemorrhage into the stomach. The wound was at once opened and some bleeding veins were found. These were secured, the wound in the stomach was closed, and the gastric fold was resutured. This patient recovered. Three months after the operation he had grown stouter, was feeling well, was eating well, and was entirely free from pain. This operation verified the diagnosis of dilated stomach and proved the absence of any gross lesion. It was seen that the proper thing to do was to lessen the enlargement of the stomach, and this was done by the performance of gastrorrhaphy. The hemorrhage which occurred was unusual and unfortunate, but was a preventable accident. Whether this general improvement in the man's condition will last, it is impossible to say; but without the exploratory gastrotomy the true cause of the trouble could not have been determined nor the proper treatment adopted.

William Petry[1] reports an interesting case in which an open safety-pin was lodged in the cardiac end of the stomach and was successfully removed by gastrotomy. It was found during the operation that, contrary to the teaching of anatomists, the opening of the esophagus into the stomach in this case was to the right of the spinal column and aorta. This accounted for the impossibility of reaching the orifice by the index-finger.

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[1] N. Y. Med. Jour., Feb. 18, 1899.

Thomas H. Morse[1] reports 2 cases of **exploratory surgery of the stomach.** He thinks that many cases which have been previously treated medically will in future be cured by operation. Two cases which he reports illustrate this, and show that the stomach is very tolerant of exploration. The first case was a man of 60. For 20 years he had had pain in the stomach at intervals, aggravated by taking food and not relieved by frequent vomiting. No tumor could be felt, and there was no special tenderness. He entered another hospital, and the diagnosis was made that the stomach was bound down by adhesions. The abdomen was opened and adhesions were found constricting the stomach into an hour-glass shape. Nothing was done to relieve this condition. The man recovered from the operation and again came under Morse's care. Morse reopened the abdomen and found a constriction of the stomach running transversely a little beyond its center, and firm adhesions from this point to the under surface of the liver. He slit up the stomach with scissors, making an incision 3 in. in length in its long axis and passing through the stricture. The organ was stuffed with gauze during the suturing. The operation carried out was exactly like the operation of pyloroplasty, the longitudinal incision being sutured vertically by two layers of sutures. This patient was cured. The second case was a man of 36, who for 14 years had suffered from gastric pain accompanied by frequent vomiting. Some months previously he vomited a pint of blood; he had lost considerable weight. The pain was exactly in the middle line, 1 in. below the ensiform cartilage. The abdomen was opened and extensive pyloric thickening was discovered resembling a malignant growth. A few adhesions were separated; an opening was torn in the transverse gastrocolic omentum in order to explore the posterior surface of the stomach. The stomach was then opened and the pylorus was found surrounded with dense fibrous tissue, and it required force to pass the forefinger through it. The growth was not malignant. Pyloroplasty was performed. The patient was cured by the operation.

Maurice H. Richardson[2] reports an interesting case of **cancer of the pylorus** in which he successfully performed pylorectomy and removed with the pylorus a portion of the pancreas. Richardson says that as time goes on we shall get better results in **pylorectomy,** especially if the operation is performed early, when the patient's strength is retained. There is every reason why stomach-operations should succeed. The structure of its walls, its rigidity, accessibility, the ease with which plastic operation may be done and sutures may be applied, render the prospect encouraging; but a permanent cure cannot be expected unless operation is performed early in the course of the disease. Annular strictures of the pylorus are at first slow to involve adjacent structures or to invade lymph-glands—that is, in the beginning the disease is limited to the tube itself. This statement should encourage us to make an early exploration in a case of suspected cancer. In fact, Richardson maintains that digital exploration of the stomach and pylorus is justifiable whenever cancer is suspected and there are no positive contraindications; and if a cancer is found extirpation should be at once performed. In this case of Richardson's a tumor could be felt, which is to be regarded as unfavorable, for such cases are usually hopeless for operation. In this case, however, the tumor was freely movable and the operation seemed justifiable. The tumor was in close relation with the pancreas, and after the removal of a portion of the pancreas there was considerable hemorrhage, which was readily checked by ligatures. In closing the wound Richardson first stitched the mucous membrane with a continuous silk suture, which not only brought the ends into partial approximation, but stopped the hemorrhage. The peritoneal surface was adjusted with interrupted silk sutures and extravasation was provided for by means of five small gauze wicks. This patient recovered, and Richardson thinks that in view of the fact that there was considerable leakage, the patient recovered because of the use of the gauze wicks. In extensive plastic operations upon the stomach, and especially in excision of portions, the danger of extravasation is great: First, because it is very difficult to make a tight approximation; and, second, because of the action of the gastric juice. It is essential to make provision for drainage. Of 20 circular enterorrhaphies, 6 patients died; 5 of shock within a few hours and 1 of peritonitis from the original extravasation; all the others recovered. Many of these patients had temporary fistulas from leakage between the sutures, and more would have died if drainage had not been used. In a simple gastrotomy the line of incision is so direct that drainage is not necessary. The patient of whom Richardson speaks was greatly improved for some months, and then began to fail gradually because of recurrence, and died 9 months after the operation. The author thinks that if the operation had been performed 2 months earlier the result would probably have been different. Pain in the epigastrium always suggests cancer if the age of the patient is such as to make the diagnosis admissible. Other symptoms confirm the suspicion. The only sign which proves the diagnosis is tumor; but this sign proves the hopelessness of the case. Exploration is justifiable if there are pain, vomiting, and hematemesis with indigestion and loss of flesh. If on exploration cancer confined to the stomach is found, an extensive dissection is indicated.

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[1] Lancet, May 13, 1899.

[2] Boston M. and S. Jour., Aug. 4, 1898.

Guinard[1] writes on the **surgical treatment of cancer of the stomach.** He has collected 302 cases in which portions of the stomach have been resected. He thinks that every tumor of the stomach demands resection if the general condition of the patient admits of the operation. The mortality of the operation is diminishing year by year. For instance, Kahn's report in 1883 shows a mortality of over 85%; whereas Halberkaut's report in 1894 shows a mortality a little over 54%. Wölfler in 1896 endeavored to estimate the mortality by studying the records of 15 German surgeons. In 92 cases before 1888 the mortality was about 56%, while in 173 cases between 1888 and 1896 it was 31%. In 291 cases of resection of the pylorus or of portions of the stomach within the last 8 years, Guinard estimates the mortality at about 35%. The reports further show that recurrence is not invariable after these operations. Löbker reported 1 patient free from recurrence 5 years after operation, and another patient 7 years after. Van Hacker reports 1 case free for 6 years, and another 8 years. Guinard says that out of 131 patients who recovered from the operation, 45 were living a year afterward. He thinks that the earlier surgeons intervene the more frequently these patients will live and the more of them will be cured. The diagnosis is, of course, difficult in the early stages; and even when the abdomen is opened and the tumor can be felt, it is sometimes impossible to identify it as a cancer. Guinard says that under two conditions exploratory operation should be performed: (1) When gastric digestion is modified positively, especially if there are apepsia and the presence of free lactic acid after the administration of a test-meal; and (2) when the patient's weight continues to fall in spite of careful dietetic and medicinal treatment. It is true that exploratory operation will often show that removal of the growth is impossible, but this exploration is practically free from danger in such conditions. In 75 cases recorded by Mikulicz, it was unjustifiable to make an exploration in 29. Exploration was undertaken in these cases and 17 were found to be irremediable. In 8 resection was performed and in 21 gastroenterostomy was done. To sum up: in about a fifth of the cases in which the symptoms point to cancer of the stomach we can employ surgical treatment.

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[1] Thèse de Paris, 1898.

Theodore Kocher[1] strongly advocates the use of **exploratory incision** in certain doubtful cases of disease of the stomach. He has often regretted that he delayed operating, but has never regretted that he operated in such cases. In an elderly person it is often difficult to distinguish an ulcer from a cancer; but the difficulty is not of much account, because either condition is best treated by resection. He lays down the following rules for surgical interference in simple ulcer: (1) When repeated hemorrhages occur, even if these hemorrhages are slight, and especially if the stomach is dilated; (2) severe pain and vomiting produced by pyloric obstruction; (3) perforation; (4) the possibility that we may not be dealing with a simple ulcer, but with a cancer. He quotes Mikulicz to the effect that the danger to the patient's life by operating for simple ulcer is about the same as the danger to the patient's life by not operating. If many adhesions exist, Kocher maintains that the circular resection of the stomach is less dangerous than is excision of the ulcer only, and in hemorrhage pylorectomy will often prove successful when a limited excision of the ulcer or ligation of the bleeding point is impossible. Kocher thinks that in cases of suspected cancer, if the symptoms are not greatly benefited by medical treatment in 4 or 5 weeks, exploration should be made. Surgeons frequently postpone interference too late because they find free hydrochloric acid present, and thus think that cancer does not exist; but free hydrochloric acid may be present when cancer does exist. When we make one of these early exploratory incisions, even if the diagnosis proves wrong, and it is found that the pain is due to adhesions or epigastric hernia or gall-stones, such diseases can only be cured by operation. Even if the symptoms are purely nervous, a laparotomy may prove curative. Kocher says the rule should be—when in doubt, operate. He has performed resection 57 times, and feels justified in stating that cancer of the stomach can be cured. He advocates resection of the pylorus, with absolute closure of the wound with 2 rows of sutures, and then the making of a posterior gastroduodenostomy, and he does not use the Murphy button.

J. W. Mayo[2] is a believer in exploratory incision in doubtful cases of **malignant obstruction of the pylorus,** which exploration-incision will admit of the carrying out of the proper surgical measure if it is found necessary. In 7 cases of malignant disease in which he explored nothing further was done, and yet in 2 of these cases noteworthy improvement followed for a time. When the abdomen is opened it is usually possible to recognize easily the cancerous nature of the disease by observing the enlarged and tortuous vessels in the peritoneal covering, which differ greatly from the white scars of an old operation. There are but two operative procedures to claim attention: the radical operation of **pylorectomy,** with which we hope to cure the patient, and the palliative operation of **gastroenterostomy.** The mortality of pylorectomy is 40% to 70%, and very few cases pass the 3 years' limit without recurrence; but if it is a fact that 50% of cases of pyloric obstruction die before systemic infection takes place, an early operation would give better results. Improvement in technic will lessen the mortality. Of 9 patients operated on by Kocher, 7 recovered; of Pean's 12 cases, 8 recovered. One cause of the great mortality in Billroth's operations was imperfect union and leakage at the suture-angle, and this weak point has been remedied by the performance of pylorectomy, followed either by side-to-end gastroduodenostomy or side-to-side gastrojejunostomy. Gastrojejunostomy is the preferable method, as in gastroenterostomy the patient is apt to have regurgitant vomiting, because the bile and pancreatic juice pass into the stomach rather than along the intestine. The operation performed by Mayo is as follows: First, a median incision above the umbilicus, followed if necessary by a cross-cut of the rectus muscle. Second, double ligation and division of the gastrohepatic omentum to allow delivery of the pylorus and lesser curvature. This admits the fingers into the lesser cavity of the peritoneum. They slip under the pylorus and act as a guide to the double ligation and division of the gastrocolic omentum. Third, the diseased portion is isolated by a portion of gauze which is drawn under it. A circular cut is made around the healthy portion of the stomach to the mucous coat, and the muscular and peritoneal coats are stripped back; the few bleeding points are caught with forceps. The mucous coat is cut inch by inch, and is at once closed by a continuous catgut suture. The detached pylorus and tumor are lifted out of the way. A second continuous catgut suture is applied to the muscular coat, and the pylorectomy wound is closed by a silk Lembert suture. Fourth, the end of the stomach is slipped to the right, and the ends of the tied omentum are sutured to each other and to the suture-line. This protects the suture-line and anchors the stomach to the right, thus preventing undue traction of the duodenum after it is fastened in place. Fifth, the duodenum is amputated at a low point, and is fastened with a Murphy button to the lower anterior wall of the stomach. [Ewald's statistics in **stomach-operations** are as follows: 26 gastroenterostomies with 16 deaths (62%); 13 resections with 9 deaths (69.2%); 22 gastrostomies with 12 deaths (54%). The report from Mikulicz's clinic shows better results. In 74 cases of gastroenterostomy there were 24 deaths (32%); 61 of these operations were for cancer. In 10 cases of non-malignant disease there was not a death. Gastroenterostomy is often unsatisfactory because fluid from the stomach is apt to collect in the proximal limb and persistent vomiting of bile may occur. This may be due to kinking, twisting, or constriction of the distal loop, to the formation of a spur, to failure of peristalsis in the proximal loop, or to contraction of the stomach-incision (especially apt to happen if the stomach is dilated). When any one of these accidents happens the stomach and proximal loop are distended and the distal loop collapsed, and the patient will soon die unless relieved. In some cases there is a vicious circle, the stomach-contents passing through the fistula into the proximal loop. If only a part of the stomach-contents passes into the proximal loop and the bulk passes into the distal loop, matters will adjust themselves. In order to prevent this complication we should do Kocher's posterior gastroenterostomy, the 2 loops being severed; or adopt the suggestion of Jaboulay and Braun and do an anastomosis between the 2 loops. Some surgeons do only anastomosis between the loops if persistent vomiting follows the ordinary operation of gastroenterostomy. Probably one of the best operations is posterior gastroenterostomy with a large Murphy button. See the excellent discussion of these questions in *Annals of Surgery* (Aug., 1898) by Charles L. Gibson, in his comments on gastroenterostomy at the Breslau clinic, as presented statistically by V. Chlumsky.]

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[1] Correspondenzbl. f. Schw. Aerzte, Oct. 15, 1898.

[2] Jour. Am. Med. Assoc., Aug. 13, 1898.

Henle,[1] in a paper on the operative treatment of nonmalignant constriction of the pylorus, considers the question whether we should adopt pyloroplasty or gastroenterostomy. The experience of Mikulicz leads Henle to assert that pyloroplasty is just as certain to be followed by restoration of function as is gastroenterostomy; and in pyloroplasty we maintain the natural condition of the parts. The operation occasionally fails because of bad technic or injudicious selection of cases. Henle speaks of a case of Mikulicz's in which this surgeon did not as usual perform pyloroplasty, but modified the operation of gastroenterostomy. He found that the obstruction was not caused by stricture, but that the pylorus had been kinked because of adhesions between the stomach and duodenum and the colon and the liver. In this case the pylorus could not be easily reached, and the stomach was anastomosed to the small intestine.

Carl Schlatter[2] has made a final report upon his celebrated case of **total gastrectomy.** The patient was 56 years of age, and suffered from a diffuse carcinoma of the entire stomach. The operation was performed Sept. 6, 1897. The patient died Oct. 29, 1898. The cause of death was infection from carcinoma of the mesenteric lymph-glands. The patient had felt and looked well in May of 1898. In Aug. she was feeling well, but had lost considerable weight. Up to the last week of her life she was able to go out. The postmortem examination showed that immediately after its entrance into the abdomen the gullet bent toward the left almost to a right angle, ran for a short distance horizontally, and then again became vertical. The subdiaphragmatic portion of the esophagus was 8 cm. in length. The lower portion of the gullet was somewhat dilated, due in part to cancerous infiltration of its inner wall. The end of the duodenum was a cul-de-sac, and was not altered. Masses of cancerous lymph-glands were found in the mesentery, between the liver and esophagus, and back of the peritoneum. Cancerous deposits were found in the bronchial and supraclavicular glands and in the pulmonary pleura. The postmortem does not confirm the idea that after total gastrectomy the esophagus or intestine dilates to such a degree as to take the place of the ablated stomach. Schlatter's patient died of carcinomatous metastasis, and not from inanition due to insufficient food.

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[1] Centralbl. f. Chir., No. 29, 1898.

[2] Med. Rec., Mar. 18, 1899.

J. H. Favre[1] reports a successful case of **removal of** almost the entire **stomach for carcinoma.** After removing the greater portion of the stomach he closed the openings in the duodenum and in the remaining portion of the stomach, and then performed posterior gastroenterostomy. He tried to use the écraseur in dividing the gut, after the suggestion of Doyen, but he found it most unsatisfactory.

G. Childs Macdonald[2] reports a successful case of total **gastrectomy for pyloric carcinoma.** The man was 38 years of age. For 2½ months he had been too ill to work. He suffered from the usual symptoms of the disease. A movable tumor could be felt. A median incision was made. The great omentum was tied in portions about ½ in. from the stomach, and divided to a point midway between the first part of the duodenum and the splenic end of the stomach. The gastrohepatic omentum was treated in a like manner to half-way along the lesser curvature. The duodenum was clamped in two places and the intestine cut between. The cut ends were packed around with gauze, and the end of the stomach was lifted out of the cavity of the belly. The remainder of each omentum was treated as were the first portions. The esophagus was clamped and divided, as was the duodenum, and the stomach was removed. The ends of the duodenum and esophagus were brought together by means of a large Murphy button, the anterior two-fifths of the junction-line being sutured with silk. The patient recovered. The case was in excellent condition 6 weeks after operation.

Maurice H. Richardson[3] reports a successful case of **total gastrectomy.** The patient was a woman of 53 years, who for 1 year had presented evidences of gastric cancer. A tumor could be felt. When the abdomen was opened it was seen that a large portion of the stomach was involved. The omentum was tied and divided, and the posterior stomach-wall was exposed. The duodenum was tied at the pylorus to prevent the escape of stomach-contents, and divided. The attachments of the lesser curvature were tied and divided, and the stomach was cut off from the esophagus; the opening of the esophagus being larger than the opening of the duodenum, it was lessened in size by the introduction of a few sutures. In order to bring the duodenum to the esophagus, some of the attachments of the former had to be divided. On the second day the patient began to take water by the mouth, on the fourth day milk, and on the sixth day eggs. Two months later the patient was apparently well. Richardson says that a patient with gastric cancer has before her, if not operated upon: 1, the suffering caused by the disease; 2, a fearful mental depression, which is often worse than death; 3, certain death. If radical operation is performed, the patient has before her: 1, the danger and suffering of the operation; the suffering cannot be greater and may be less than that caused by the disease; 2, hopefulness instead of despair; 3, a fair chance of recovery, which may even be permanent. The operation in suitable cases is proper. It will lessen suffering and often prolong life.

[One of the most brilliant of the recorded cases was the complete gastrectomy performed by Charles Brookes Brigham[1] of San Francisco. Brigham was able to unite the lower end of the esophagus with the divided duodenum. In Schlatter's case the duodenum was low down, and it was impossible to unite its cut end with the esophagus, and in consequence the esophagus was stitched to the jejunum. It is very rarely that a case suitable for operation is met with. Such a case has the strength well preserved, the tumor is movable, adjacent parts are not infiltrated, and there is no glandular dissemination.]

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[1] Presse méd., Dec. 31, 1898.

[2] Jour. Am. Med. Assoc., Sept. 3, 1898.

[3] Boston M. and S. Jour., Oct. 20, 1898.

Panow[2] writes on **round ulcer of the stomach.** He believes the ulceration to be due to arrest of circulation in the end-arteries of the stomach-wall. An ulcer forms, there is increase of gastric secretion, and the ulcer tends to increase in size. He believes it possible, if there is excess of acid gastric juice, even if there is no disturbance of circulation, for degeneration of the mucous membrane with hemorrhage to occur, or even in rare cases for ulcers to form.

Aufray[3] points out the following symptoms as indicative of **perforation of the stomach.** Sudden onset of violent local and constant pain, increased by the taking of fluids. He compares this pain to a sword-thrust. There are great abdominal tenderness and muscular rigidity with retraction of the belly-walls. As a rule, collapse comes on rapidly and is intense, and vomiting is unusual. When the belly is opened gas escapes, and this gas is devoid of fecal odor. Partially digested food may be found extravasated and adhesions of the intestines may be noted, increasing as we approach the stomach.

Cabot[4] reports a case of **perforation of a gastric ulcer** in which he successfully applied sutures 24 hours after perforation. The perforation was in the lesser curvature and was surrounded by an area of induration. He inverted this area of induration and passed his sutures through healthy structure. He sewed up with 2 rows of sutures. In this case the stomach-contents had not extravasated, but much gas had escaped, which gas obscured the liver-dulness. Cabot flushed the abdomen with salt solution and also wiped it out and drained with gauze for 5 days. Food was not given by the mouth for several days. The patient recovered.

A. H. Tubby[5] reports a most interesting case of operation for **hemorrhage from a gastric ulcer.** The patient was a man 27 years of age, and had had symptoms of ulcer for about 1 month. On Sept. 13 he vomited a large quantity of blood. On the 16th he again vomited blood. Thirty ounces were caught and measured, but much was lost. On the 20th he vomited 40 ounces, and on the 21st 20 ounces. When seen by Tubby he was almost moribund. The patient was transfused with salt solution and was given an enema of salt solution and brandy. He was anesthetized with A. C. E. mixture. A median incision was made. Nothing was found on the anterior wall of the stomach. The posterior layer of the mesocolon was torn through, and the posterior wall of the stomach was examined. About 1 in. from the lesser curvature and toward the right side the stomach-wall was thin, and several thrombosed vessels beneath the peritoneum radiated from this point. A fold of the stomach, including the thin portion and thrombosed vessels, was pinched up, a continuous purse-string suture was inserted at the base of the cone, and the ends were tied. This opposed mucous membrane to mucous membrane and shut off from the rest of the stomach the small portion of the viscus containing the ulcer. Further bleeding was thus prevented. The man died 9 days after operation, but during this time there was no bleeding. Postmortem examination showed that no further hemorrhage had occurred. Death was due to the excessive hemorrhage of 10 days before. The operation succeeded in its immediate purpose. In this case the collapse was so extreme that it was absolutely unjustifiable to open the stomach and search for the bleeding point. Cases of gastric hemorrhage are more difficult in an operative point of view than cases of perforation. In the latter cases we are guided to the seat of trouble by extravasated food, bubbling gas, and loss of continuity in the stomach-wall. In an unperforated ulcer the only guiding points are alteration in the consistency of the stomach-wall at one spot, and, as in this case, the presence of thrombosed vessels beneath the peritoneal coat. Tubby regrets that he did not transfuse the patient with defibrinated blood.

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[1] Boston M. and S. Jour., May 5, 1898.

[2] Vratch, No. 4, 1899.

[3] Gaz. hebdom. de Méd. et de Chir., Sept. 8, 1898.

[4] Boston M. and S. Jour., Aug. 11, 1898.

[5] Practitioner, Dec., 1898.

Willoughby Furner[1] reports 3 cases of **perforated gastric ulcer** showing complications after operation. The first case was a woman, aged 37. The operation was performed, it was supposed, 5 hours after the perforation. On opening the abdomen a large abscess was found leading directly into the stomach. The lower wall of the abscess had ruptured into the general peritoneal cavity. A drainage-incision was made above the pubes, and the abscess-cavity and abdominal cavity were flushed. The abscess-cavity was packed with gauze and a drainage-tube was inserted above the pubes. Peritonitis subsided, and for a time the patient did well. Death occurred 3 weeks after the operation, from exhaustion. The second case was a woman, aged 22, operated on 24 hours after rupture. On opening the abdomen gas escaped, but no stomach-contents were observed. The stomach was empty. The ulcer was found on the anterior surface of the lesser curvature, near the cardiac end. The ulcer was inverted and sutured with 1 row of Lembert sutures. The abdomen was flushed and a gauze drain was inserted. This patient did well for 12 days, when fever developed and dulness was noted over the base of the left lung posteriorly, due to pleural effusion. Two days later the left pleural cavity was aspirated and a considerable amount of clear serum was obtained. This tapping was performed to discover if the fluid were purulent. Had it been purulent, it would have been justifiable to assume that there was some irritation of the peritoneum, perhaps of the lesser cavity. This patient recovered. The third case was a woman of 24. She was admitted with symptoms of perforation of 4 hours' duration, and was operated upon 2½ hours after admission. Perforation was found on the anterior surface of the lesser curvature, near the pylorus. The peritoneal cavity contained gas and stomach-contents. This condition was treated as in Case 2. A week after the operation, stomach-feeding having begun, she passed 2 large, loose, black stools. The next day but one melena occurred again and the patient was blanched and restless. Feeding by the mouth was out of the question, enemata were not retained, and it seemed dangerous to rely on drugs to control the hemorrhage. The surgeon decided to open the small intestine and thus feed the patient while giving the stomach rest.

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[1] Lancet, Dec. 31, 1898.

An incision was made in the right semilunar line. The small intestine was found. A portion of it was selected which was about a meter from its commencement. This portion was opened and fixed to the parietes and a small rubber tube was inserted. The patient was fed solely through the tube from Mar. 5 to Mar. 12. On the latter date small amounts of food were given by the mouth and tube-feeding was continued. On the 22d she was fed entirely by the mouth. This patient recovered. The small fistula in the intestine was closed by operation. Such a hemorrhage as occurred in Case 3 may come from the ulcer which perforated and was closed, from injury to a previously healthy portion of the stomach during operation, or from a second coexisting ulcer. If there is a second perforation, surgically speaking, the abdomen can be reopened and the perforation closed, with or without a gastrojejunostomy. Before deciding to interfere surgically, remember that 2 cases are on record in which serious symptoms of perforation were noted, but no second perforation was found. In each case the original ulcer was on the posterior wall, and its adjacency to the solar plexus may explain the symptoms. Before coming to a conclusion as to the proper treatment of such a condition as was presented by Case 3 (hemorrhage after operation), we should consider the recently suggested treatment for hemorrhage from gastric ulcer which has not perforated. W. Rose in 1896 said: "Operations for hemorrhage have not been frequent—indeed, there are only 2 successful cases on record. Mikulicz performed 1 fatal operation, and the 2 successful cases have occurred in the practice of Kuster." H. P. Hawkins states that Kuster quotes 4 cases of excision of ulcer for dangerous hemorrhage, 3 of these cases having been cured. Leube thinks that operation is indicated if a profuse hemorrhage is repeated or if small, repeated hemorrhages occur. Leube says that in 4% of cases of nonperforated gastric ulcer operation is indicated. The operations previously performed for nonperforated gastric ulcer consist in opening the viscus and excising or cauterizing the ulcer, "with or without pylorectomy or gastrojejunostomy." The author has found no report of the surgical treatment of hemorrhage following operation for perforated ulcer. He thinks the performance of a temporary enterostomy in such a case has a notable advantage. It may permit us to sustain life during a crisis and is a comparatively slight operation. In a nonperforated case the operation should be performed as follows: The abdominal incision is vertical, through the left rectus muscle, and its center is opposite the umbilicus. The great omentum and transverse colon are lifted up. The surgeon passes his fingers along the under surface of the transverse mesocolon to the spinal column to find the ligament of Treitz, which marks the beginning of the jejunum. The bowel is opened about 1 meter or less from its commencement. In order to avoid strangulation a large loop is taken. A small opening is made with a tenotome. In order to avoid a spur the bowel is sutured above and below and not too near the opening. A small-sized Jacques catheter is introduced toward the rectum, and the bowel should grasp it so tightly that there is no leakage; the instrument should be stitched to the skin and to the dressing. In discussing **retrogastric subphrenic abscess,** Furner maintains that in all operations for perforated ulcer the lesser peritoneal cavity ought to be opened. This admits of exploration of the posterior surface of the stomach. If we find disease of the posterior wall of the stomach, especially if it is in the pyloric end, after closing the ulcer perform gastrojejunostomy. Again, it is only by opening the lesser peritoneal cavity that we can flush it; and this cavity is the favorite seat of subphrenic abscess when the ulcer is on the posterior wall, and such an abscess may form even when the ulcer is on the anterior wall, as in one of Furner's cases.

Frank M. Sherman[1] reports a case of operation for **perforated gastric ulcer** in which, though the perforation was not found, drainage was applied and the patient recovered. When the abdomen was opened there was a gush of gas and turbid serum. The stomach was attached to the abdominal wall by recent adhesions, which were separated. Patches of lymph were upon the lower part of the anterior wall, the cardia, and posteriorly. The stomach contained fluid. No perforation could be seen. In handling the stomach fluid oozed up from behind, showing the seat of the perforation. The stomach was so firmly bound down to the pancreas that the ulcer could not be reached. The extravasation was limited, and lay in a cavity bounded below by the transverse colon, on the right by the stomach, on the left by the spleen and diaphragm, above by the diaphragm. This cavity was flushed and drained with gauze. The patient recovered, and the ulcer apparently healed under rest in bed, cessation of mouth-feeding, and the use of rectal alimentation. Had sufficient assistance and apparatus been at hand in Sherman's case, he would have done as Keen directs us to do in a posterior ulcer in which the parts are not accessible because of adhesions behind—that is, open the stomach, use the thermocautery on the ulcer, and do gastroenterostomy. Kuster did this in a case.

Many other interesting cases of **operation for gastric ulcer** have been reported. Among them we may mention F. H. Hartley's[2] successful treatment of a perforated gastric ulcer by excision and suture; F. D. Bird's[3] 2 cases of successful operation for acute perforation of a gastric ulcer; a case of perforated gastric ulcer successfully operated upon by Thurston;[4] R. Steen Bowker's[5] successful case of operation for perforation, the patient having recovered in spite of an attack of pneumonia; John H. Morgan's[6] 2 cases of operation for perforated gastric ulcer, with 1 recovery and 1 death; the successful case of operation for perforated ulcer recorded by Sidney Phillips and A. Quarry Silcock;[7] the successful case of operation for perforated ulcer reported by John Campbell.[8]

C. B. Lockwood[9] reports a case of **gastrojejunostomy** in which the artificial opening was surrounded by a triple layer of sutures and lined with mucous membrane. The author says that there is much discussion as to the best method of uniting 2 portions of the alimentary canal; some prefer a simple suture, some employ a mechanical aid. In some cases the simple suture requires much time to apply, although it effects a satisfactory junction. The use of a mechanical appliance shortens the time of operation, but the presence of the apparatus may be dangerous.

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[1] Boston M. and S. Jour., Feb. 23, 1899.
[2] Med. Rec., Feb. 11, 1899.
[3] Intercol. Med. Jour., Feb. 20, 1899.
[4] Charles R. Box and E. Owen Thurston, in Lancet, Apr. 1, 1899.
[5] Austral. Med. Gaz., Nov. 21, 1898.
[6] Lancet, Feb. 11, 1899.
[7] Ibid., Mar. 25, 1899.
[8] Brit. Med. Jour., July 16, 1899.
[9] Lancet, Nov. 12, 1898.

If it is absolutely necessary to operate with great rapidity, a Murphy button or some other mechanical aid should be used. If speed is not so vitally essential, a simple suture should be employed. Lockwood's patient suffered from an inoperable cancer of the pylorus. The anterior wall of the stomach and the beginning of the jejunum were drawn out of the wound, the great omentum was pushed back with a sponge, and the stomach and jejunum were sutured together for 3 in. with interrupted silk sutures, all of which were cut short except the 2 end ones, which were used to steady the parts. These sutures only included peritoneum, and the row was parallel with the greater curvature of the stomach and mesenteric edge of the jejunum, and ½ in. from each. An incision 1½ in. long was made down to the mucous coat of the stomach, and the bowel was treated in a similar manner. The mucous coat was cleared for ⅓ in. around each incision. The peritoneal and muscular coats of the stomach and jejunum were sewed together with interrupted sutures parallel to the peritoneal row. The stomach and jejunum were both opened by incising the mucous membrane. These were sutured together. By this stage openings had been made into the stomach and jejunum, and the edges of the opening next to the greater curvature of the stomach and the mesenteric border of the bowel had been sewed together by 3 parallel rows of sutures, the first through the peritoneal coat, the second through the peritoneal and muscular coats, and the third through the mucous coat. The upper side of the opening was sutured in the same manner by 3 rows of sutures. This operation furnishes an opening lined with mucous membrane. This method is more secure than those usually employed. It is a risk which may lead to death to have the cut mucosa and serosa exposed to corrosive gastric juice, as takes place in the ordinary operation. The operation of gastrojejunostomy is comparatively rare. In 1892 Jessett collected 17 English cases, and in 1894 Bidwell collected 15 more. The operation should be performed as soon as dilatation is recognized.

A. E. Barker[1] furnishes some details of the operation of **posterior gastroenterostomy.** He says the operation is yet upon trial. If the procedure is to be of real use, it must be shown to have little risk. The mortality of gastroenterostomy has been very high, because it has usually been performed on patients much exhausted. Barker does not think that the posterior method should have a higher mortality than the anterior. In the posterior method we are free from certain risks which attend the anterior method (kinking of the bowel, and, if a button is used, the tendency of this appliance to drop into the stomach). Carle of Turin reports that in his last 23 posterior gastroenterostomies there was not a death. In nonmalignant cases Carle's gross mortality is 3.8%. For some days before the operation the stomach should be carefully washed out. The skin of the abdomen must be cleansed for 48 hours before operation. In order to retain the body-heat at the operation, envelop the patient from head to feet in hot wool secured by sterile bandages. If the weather is cold, place hot bottles around the patient. Use no antiseptic within the abdomen. The incision is at first small, to permit of exploration; if operation is determined on, it can be enlarged if necessary. The Murphy button is a great aid in this operation; it saves time and trouble. After the button is inserted the viscus is closed around it by Carle's method rather than Murphy's. Murphy uses a purse-string suture to close the tissue around the center tube. Carle opens the viscus by an incision just large enough to admit the button, inserts the button, and puts a Lembert stitch at each end of the slit. This plan saves time, handling, and dragging. Von Hacker recommends that when the stomach has been reached through a slit made in the transverse mesocolon, it should be fastened there by stitches before being anastomosed to the jejunum. Barker thinks that if the button is used this stitching need not be carried out. The posterior wall of the stomach should be drawn through the hole in the mesocolon to a sufficient extent to admit of the application of the button. When the button has been inserted, the stomach-end slips back through the slit in the mesocolon; hence stitches are not necessary. Barker reports 2 successful cases of this operation.

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[1] Lancet, Nov. 12, 1898.

DISEASES OF THE PERITONEUM AND INTESTINES.

A. Ernest Maylard[1] makes some remarks upon the operative treatment of distended small intestine in **acute obstruction** and in **acute peritonitis.** He says a point that is secondary only to the removal of the exciting cause is the treatment of the distended gut. If we succeed in removing the cause and yet do not attend to the overdistended and enlarged intestine, life will frequently be lost. We do not know what circumstances finally cause paralysis of the bowel, and we do not know how far this paralysis can go for recovery to become impossible. A primary factor in the production of bowel-distention not dependent upon peritonitis is the damming back of the intestinal contents; but this, if an early factor, cannot be considered the most important, because it is finally relieved by vomiting. It is probable that muscular exhaustion and fecal poisoning so interfere with the function of the intestinal muscle, that the walls of the intestine eventually become unable to resist the distending force of gas and intestinal secretion. The higher up the obstruction is seated the sooner does the proximal segment become distended. This is due to the fact that high up in the intestine the efforts of the intestinal muscle to overcome the obstruction are practically continuous, and when intermittent action becomes continuous action there is no time for rest. That there is a toxic influence which paralyzes possibly both the muscle in the wall of the bowel and its local nerve-supply is shown by the fact that general toxemia is met with in some cases. We do not know what the poison generated within the intestinal canal is; but from the quantity of gas formed in many cases, and from the large amount of secretion, it seems probable that certain abnormal fermentative and chemical changes take place. It is possible that the blood-vessels and elastic tissue in the wall of the bowel also suffer. The blood-vessels dilate and make the bowel livid; and the elastic tissue loses its power of recoil after it has been stretched beyond certain limits. All operative procedures for the relief of obstruction accompanied by intestinal distention must have in view (1) the prevention of distention and (2) the removal of the intestinal contents. There is no doubt

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[1] Brit. Med. Jour., Apr. 8, 1899.

that when the bowel is within the abdomen, it is supported to a considerable extent by the abdominal wall and its distention is somewhat limited, but that the limits of the distention are sooner reached the lower the seat of obstruction ; for instance, if the obstruction be at the cecal end of the ileum, there is a long extent of bowel to be dilated, and the coils support each other as they distend and limit the dilatation. When the obstruction is near the upper end of the jejunum, there is less support offered by the lower collapsed coil, and so more room is afforded for the proximal segment. When this distention exists, if the abdomen is opened the exposed and unsupported coils increase in size. In view of this fact Maylard now empties the intestine before attempting to find the cause of the obstruction. After opening the abdominal cavity the distended coil that presents is at once withdrawn sufficiently to permit of an incision being made in its long axis. As the contents of the intestine flow out and the bowel-wall collapses more gut is withdrawn. We may assume that the amount of general infection diminishes in proportion to the amount of the poison we are able to remove. We should therefore squeeze out the contents through the incision, an assistant preventing the escape of the contents into the distal portion during the squeezing of the proximal portion, and preventing entrance into the proximal portion during the squeezing of the distal portion. In some cases it may be necessary to make more than one incision. When the intestine has been emptied the evacuatory incision is closed with a continuous Lembert suture, and the parts are carefully cleansed. The author does not think that the necessary amount of handling the intestine proves injurious; in fact, if the bowel has not entirely lost its power of contraction, the squeezing stimulates the muscular coat and also helps to relieve the vascular engorgement. It is a good sign if the bowel wrinkles after being emptied, as it indicates the retention of some contractile power; and it is a still better sign if the bowel tends to evacuate its contents spontaneously after its incision. In cases of peritonitis where the cause of the distention is paralysis of the muscular coat from inflammation of the serous covering, we should insert a solution of magnesium sulphate through the evacuatory incision just prior to its closure. About 1 oz. of a saturated solution is introduced. Maylard reports some striking cases in which recovery followed the treatment indicated above.

William W. Van Arsdale[1] advocates the treatment of the **intestinal paralysis** of peritonitis by **enterostomy,** and reports some striking cases. He says that in grave cases of **peritonitis** complicated with paralysis we are in so helpless a condition with existing surgical means that any method of treatment which appears to favor good results should receive careful attention. The treatment by the establishment of one or more enterostomy-openings, in order to drain the intestine, he thinks is serviceable. He says that in many cases of peritonitis in which the abdomen has been opened for the purpose of drainage, the packing or the tubes which have been passed between the coils of distended gut may easily compress the latter, and thus interfere with the restoration of peristalsis and the normal evacuation of the intestine. In such a case, if we make an opening in the intestine, it will prevent this danger by acting as an escape-valve. The opening should be made longitudinally. This will greatly facilitate spontaneous closure; in fact, it is difficult to keep it open long unless a foreign body be present. When openings are made at an early date, there is some danger of fecal matter spreading over the wound; and in order to prevent this, packing of iodoform-gauze should be introduced into exposed cavities and compresses should be placed on the raw surfaces. After granulations have formed, fecal matter will not cause infection unless these granulations be made to bleed. The fistulous opening in the gut may be used for the introduction of medicines or restoratives if some intestinal function is present. If the distention and paralysis of the bowel are not complete, it is advisable to leave a portion of distended intestine in the abdominal opening, so that at a subsequent time, if the bowels do not act, or if symptoms of toxic absorption continue, an artificial opening may easily be made.

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[1] Ann. of Surg., Jan., 1899.

At the sixty-sixth annual meeting of the British Medical Association[1] Kocher read a paper on **intestinal obstruction.** Excluding cases due to hernia or disease of the rectum, Kocher has had charge of 77 cases of intestinal obstruction. Of these, 26 cases were due to malignant growths of the intestine; 24 of them were operated upon, and of these 20 have recovered and 4 died. A form of intestinal obstruction more common in Switzerland than in England is local tuberculosis with the formation of tumors and constriction, occasionally accompanied by secondary invagination. Kocher has seen 19 such cases, and has operated on 18. The operation is very difficult because of excessive adhesions. He resects the diseased part. Of his patients, 16 were cured and 2 died A third form of trouble were cases due to **intussusception.** Six cases of this disease were operated upon, and in 5 the entire part was resected. All of them recovered. The 1 that died was treated by the formation of an artificial fistula because of the existence of peritonitis. If we remove from these 3 categories the worst cases in which more or less extensive intestinal resection was necessary, we see that in 38 of these severe cases we have a mortality of only 18.4% ; so we cannot accept the general view that these cases are all but hopeless, whether treated medically or surgically. In regard to the much simpler operation which has to be performed for other cases of intestinal obstruction; for instance, when we remove an ovarian tumor which presses on the intestine, or cut through a peritoneal band which strangulates a portion of the bowel, or untwist the bowel in volvulus, we know that the results are less favorable than in the most complicated cases of intestinal resection. In 15 cases in which the obstruction was only symptomatic; that is, was caused by disease of other organs than the intestines; he has operated 6 times, with 3 deaths. In 16 cases of strangulation by adhesion he has operated 15 times, with 7 deaths. In 7 cases of **acute volvulus** 6 patients were operated upon and 5 died. Of 4 cases in which there was either no diagnosis or probably only fecal obstruction, 2 were operated upon and both recovered. So with these much simpler operations he has had in 29 cases a mortality of 59.2%, against a mortality of 18.4% in resection-cases. The conclusion is that it is not the operation which explains the great mortality in some forms of obstruction, but that there are other reasons to account for it. It is well known that in cases of strangulation of a portion of the bowel gangrene and ulceration may result from external pressure at the seat of the obstruction. In case of strangulation everybody admits that the only chance of saving the patient is early operation; but it is more important that every physician should realize that the majority of patients with intestinal obstruction do not die by such strangulation with local gangrene and ulceration, but that the common cause of death in all forms of obstruction from strangulation as well as by stricture, whether chronic or acute, is a different one. The majority of his postmortem examinations show the existence of important lesions in the intestinal wall above the seat of obstruction; for instance, circumscribed necrosis of the mucous membrane going on to ulceration and perforation through the whole thickness of the intestinal wall. The cause of these perforations is not the compression of hard fecal matter; they are found when the intestine is filled with liquid contents. The cause is the same as that which acts in strangulated hernia above the seat of strangulation, and is the same cause which can be produced artificially if we overdistend a portion of the bowel by injecting gas or fluid. Without the slightest interference with the mesenteric circulation the bowel becomes blue from venous stasis. Ecchymoses may form in the mucous membrane; the nutrition is impaired, the protective influence of the epithelium is lost, and the mischief is done, and from this very moment there begins absorption of bacteria and toxic products. If the surgeon does not interfere in time, the patient will die from general intoxication with circulatory weakness and collapse, or from local intoxication with necrosis of the mucous membrane going on to ulceration and perforation. There is no peritonitis without the presence of microorganisms, and these microorganisms can get through the intestinal wall only when that part has its circulation and nutrition interfered with. If we operate on a patient with strangulation of a part of the intestine, the compressed intestine and the mesentery are at once freed. There is another thing we should do with just as much certainty, and that is, get rid of the distention of the intestine above the seat of obstruction, and in order to do this we must empty the bowel above the obstructed part. If we are dealing with a patient who is in good condition and who has not general intoxication or peritonitis, open the abdomen in all cases if there is hope of removing the cause of obstruction. Let the distended bowel protrude through the abdominal opening, protect it with warm towels, open the bowel by small incisions, and wash it out in order thoroughly to empty it. We are thus enabled to detect existing perforations or areas where perforation is threatened; and, further, there is no better stimulation to the heart than removing toxic influences from the bowel. If we are not sure that we can remove the cause of obstruction, or if the patient's condition forbids a serious operation with resection of the intestine, begin to empty the intestine by washing out the stomach, and if the relief thus afforded is not permanent, perform an **enterostomy** under cocain; a very small opening will permit the escape of gas; and we may find after making this small opening that we can perform rapidly an enteroanastomosis, and thus enable the patient to recuperate, and later stand a more serious operation. Surgeons too often hesitate to operate for intestinal obstruction because they think too exclusively of the necessity of at once performing a radical cure. Of course, it is desirable to make a radical cure if it can be safely done; but in many cases the only proper plan is first to perform simple enterostomy and empty the bowel of its poisonous contents. Every case of intestinal obstruction must be submitted to the surgeon promptly and before any drug has been given. A surgeon should always have in consultation a good physician. [We regard Kocher's suggestion as to opening and emptying the intestines as of the very highest importance, and of late have followed the same plan. Treves[1] warmly advocates a like procedure.]

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[1] Brit. Med. Jour., Oct. 29, 1898.

Maurice H. Richardson[2] reports a case of acute general **streptococcus-infection** of the peritoneum following **facial erysipelas.** He performed laparotomy, flushed out the abdominal cavity, and the patient recovered. He thinks that sooner or later a bacteriologic classification of cases of **peritonitis,** which is based on clinical evidence, will be possible. It seems certain that of general peritoneal infections depending upon appendicitis, those in which the colon-bacillus is the chief factor exhibit a comparatively low temperature; those produced by the Streptococcus pyogenes a high temperature; that a mixed infection may cause a high or low temperature according to what germ predominates. The streptococcus-infection tends to rapid degeneration. A staphylococcus-infection is comparatively slow in progress. An infection from the colon-bacillus is sometimes rapidly fatal and is sometimes mild in course. Furthermore, the virulence of the controlling germ varies in different cases between wide limits. Certain rare cases of general peritonitis recover under medical treatment, but in such cases it is impossible to demonstrate positively the existence of a germ-infection. If we take such an infection for granted, it seems likely that it must have been mild and of slow development; though, as has been demonstrated by subsequent operations or autopsies, the extensive adhesions prove that it may have been widespread. In some few successful surgical cases it can be proved that the infection was due to most virulent germs. As a rule, however, the milder the germ the more favorable the case. Recovery under any method of treatment is rare, and a delay of a few hours after such an accident as perforation of the appendix puts the patient beyond the pale of reasonable hope. Whenever constitutional and abdominal signs point to a general and profound toxemia the time for successful interference has probably passed. The general peritonitis of appendicitis is a mixed infection in which the Streptococcus pyogenes is the most active factor. The colon-bacillus has great reproductive activity, and it is often found in pure cultures because of this activity; findings which have led surgeons to overrate its influence. The fact that in colon-bacillus infections a small number of recoveries have been reported after drainage and irrigation has always encouraged Richardson to attempt to save them. He has always, however, regarded streptococcus-infections as certainly fatal; but the following case proves that this conclusion is not absolutely true. His patient was a woman, aged 42. She had an attack of erysipelas involving the left arm. In 3 days the redness and swelling had practically disappeared. Two days later she was attacked with severe abdominal pain, fever, marked tenderness over the lower portion of the abdomen, nausea, and vomiting. At this period she was menstruating. The abdomen was distended and rigid, but there was no dulness and no tumor. The abdomen was opened in the median line, below the umbilicus. The intestines were distended and floating in cloudy serum, and the peritoneum was highly injected; here and there flakes of fibrin could be seen between the adherent coils. A culture was at once taken from the escaping serum. A second culture was made from the surface of the presenting intestine. The abdominal cavity was washed for 15 minutes with warm saline solution. A gauze drain was carried into the depths of the pelvis at the lower angle of the wound. The patient recovered. Richardson says that the source of the infection was with little doubt **erysipelas**; and though the germ might have been introduced into the abdominal cavity through the blood, it is more probable that it was introduced into the menstrual flow in the Fallopian tube. Richardson can recall but 1 or 2 instances of peritoneal infection without apparent cause; but that general infections do occur when it is impossible to demonstrate the route of invasion, he has no doubt. It is surprising that infections should be so rarely through an open channel like the Fallopian tube, although, to be sure, this tube is provided with ciliated epithelium which sweeps back invading bacteria; but so are the bronchi, and at times they have little efficacy in warding off pneumococci. A case like the present impresses on surgeons the importance of operating on every case at the earliest possible moment. The recoveries upon which are based the demand and justification for early operation must be true infections as shown by bacteriologic examination. Turbid serum does not mean anything, for turbid serum is just as likely to be sterile as not. A number of acute abdominal cases have been operated upon successfully at the Massachusetts General Hospital as cases of acute general peritonitis; and although the gross appearance at the time of operation seemed to confirm the diagnosis, cultures which were taken proved to be sterile, a fact which at once deprived the cases of their supposed importance. No case should be accepted as an instance of acute general peritonitis without an examination by a competent bacteriologist; not even a case in which the abdominal fluid has the appearance of pus. It is probable that the majority of reported successful operations were for infections which were more apparent than real. The bacteriologist's report in Richardson's case showed the existence of a yellow streptococcus.

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[1] Lancet, Nov. 5, 1898.

[2] Boston M. and S. Jour., Sept. 8, 1898.

F. B. Lund[1] reports 10 operations for **general peritonitis,** with 4 recoveries. In the first case the cultures showed the colon-bacillus, and this patient recovered. In Case 3, which recovered, there is no note as to the cultures. In Case 8, which recovered, no cultures could be grown. Lund says they were hurriedly taken from the upper part of the omentum, and not from the pelvis, which was the seat of acute inflammation. Case 10, which recovered, was an old tubercular peritonitis with mixed infection, and cultures showed the presence of streptococci and colon-bacilli. The operation advised by Lund is evisceration, wiping the fibrin off the bowels, irrigation and sponging, when necessary, of the abdominal cavity, which must sometimes be supplemented by incision of the intestines to permit of the escape of feces and flatus and to allow of return of the abdominal contents. The step in the operation which is attended with the most shock is the removal of adherent fibrin from the bowel; and if this fibrin is firmly adherent, it is best not to make prolonged attempt to remove it. When it is lightly adherent it may be easily and quickly removed. When there is purulent and seropurulent fluid in the abdominal cavity, but no fibrin adherent to the intestines, it is not necessary to eviscerate. The author believes in the suggestion of McCosh, that we should inject saturated solution of Epsom salt into the bowel. Early recognition is of the first importance in these cases. Cases in which ecchymotic spots were noted in the intestines have been uniformly fatal.

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[1] Boston M. and S. Jour., Sept. 8, 1898.

Hildebrandt[1] discusses the question of why **laparotomy** often **cures tuberculous peritonitis.** He performed a series of laparotomies on healthy animals and on animals in which he had produced tuberculous peritonitis, and he came to the following conclusion: The operation is followed by temporary arterial hyperemia, most pronounced in the serous sheath of the small intestine, less marked in the large intestine, and least noticeable in the stomach and the parietal peritoneum. This is followed by a venous hyperemia, lasting from 4 to 7 days in a healthy animal, and considerably longer if tuberculosis exists. There is some paresis of the intestine. If the air of the room is warmed up to the body-temperature the paresis is less marked. If the air is excluded entirely during the laparotomy by operating on the animal when its body is submerged in warm normal salt solution, there are much less vascular disturbance and very little paresis. In the early stages of tuberculosis laparotomy is useless; and this is probably explained by the fact that cultures taken in an early stage of the disease are more virulent than those taken in a later stage; that is, in a later stage there seems to be a tendency to spontaneous cure, laparotomy simply aiding this tendency. The best period in which to operate is when the signs of the tuberculous peritonitis are well marked, but the animal has not yet begun to lose flesh. The amount of improvement which follows operation seems to be directly in proportion to the amount of venous hyperemia which is caused, and this venous hyperemia is a phenomena of inflammation due to the action of air upon the peritoneum. Laparotomies performed when air is excluded are far less beneficial, although the animal recovers more easily from the immediate effects of the operation. [Some surgeons are skeptical as to the curative power of operation, and think the disease often tends to spontaneous cure. Most surgeons believe that the operation is the factor in curing many cases. We are in accord with the last view, and believe that probably 50% of cases can be cured by operation. In most cases simple incision without irrigation is all that should be done; but in other cases this is not enough; for instance, a tuberculous appendix or tuberculous glands in the omentum should be removed. As Byron B. Davis[2] of Omaha has said: A primary focus should always be sought for, and if found should, if possible, be removed. Reports do not indicate that drainage is of any service. Most observers assert that tubercle heals by formation of fibrous tissue; but Gatti seems to prove that it heals by degeneration of epithelioid cells, preexisting connective tissue pushing in to fill the vacuoles. It may be claimed that a laparotomy causes hyperemia and inflammation, and hence degeneration of epithelioid cells and cure. Gatti holds that it causes a profuse flow of serum into the peritoneal cavity, which serum contains an alexin which destroys the bacilli. If Gatti's view is right, drainage would be actually injurious.]

M. Lejars[3] says that in certain cases of **acute tuberculous peri-**

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[1] Münch. med. Woch., Nos. 51 and 52, 1898.

[2] Jour. Am. Med. Assoc., Aug. 20, 1898.

[3] Progrès méd., Dec. 7, 1898.

tonitis the onset is so sudden as to suggest appendicitis or intestinal obstruction. Intestinal obstruction is not unusually encountered in cases of ordinary chronic tubercular peritonitis due to a mechanical cause; for instance, an adhesion or a constricting band; and Lejars speaks of a case in his own practice which was produced by a band. In some cases there are symptoms of obstruction, and yet when the abdomen is opened no mechanical cause is discovered, and the surgeon finds that the abdomen contains a little turbid serum and that the peritoneum shows some tuberculous granulations. After such an operation the symptoms of obstruction are apt to disappear. Lejars says that such cases should be grouped as paralytic pseudo-occlusions. The likeness of some cases of tuberculous peritonitis to appendicitis is so great that a differential diagnosis can scarcely be made. It is not easy to account for the great improvement or even the positive cure which sometimes follows laparotomy.

Mannaberg[1] reports a case treated by Wölfler, in which a patient had been shot with a revolver and numerous **wounds** had been inflicted **on the intestines.** There were 17 wounds in the lower part of the ileum; 16 perforated and 1 grazed the serous coat; 8 of the perforated wounds were on the convex portion of the bowel, and the other 8, which were apparently wounds of exit, were near the mesenteric attachment. The surgeon closed each wound by a double row of sutures. One row included the mucous membrane and the muscle-coat, the serous coat being inverted by Lembert sutures. This patient recovered. This is the largest number of wounds recorded as having been successfully sutured. The author maintains that we should operate at once in **perforating abdominal gunshot-wounds** unless the patient is greatly collapsed or unless there is an absence of any grave symptom and a freedom from any evidence of local inflammation in a case which was not seen by a surgeon during the first 24 hours after injury.

Charters J. Symonds[2] recently delivered a most interesting address before the Hunterian Society on the "Individual Value of the **Symptoms in Perforative Peritonitis.**" He said that if pain occurs at the beginning of the onset, it indicates severity of the process after we have made ample allowance for the different capacities patients possess for standing pain. If pain is limited to the right iliac fossa, it is valuable as pointing to the seat of trouble. When pain is continuous and is distinguished from tenderness, and when pain recurs after a period of freedom from it, an operation should be performed. We must not obscure this valuable sign of pain by the continuous use of sedatives. Two most important symptoms are general distention of the abdomen and immobility. If the general distention does not pass away after the use of a tube or administration of a turpentine enema on the second or third day, it indicates a progressive case and calls for operation. After perforation of a gastric ulcer there may be no distention for 12 to 24 hours. In a case of appendicitis general distention associated with pain and tenderness, but without localized tumor, is of the gravest augury. If in such a case the temperature continuously rises, the prognosis is worse, and immediate operation may be demanded within 48 hours after the beginning of the attack. The author discusses the value of vomiting as a symptom. It always accompanies the beginning of perforation, but it is often absent in **gangrenous**

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[1] Beiträge z. klin. Chir., Band xx., Heft 2.

[2] Lancet, Mar. 11, 1899.

appendicitis. At the onset of the symptoms, it indicates severity and suddenness. If it recurs after the patient has been fed carefully and been given rest and a sedative, it is an alarming sign, and cases in which it recurs usually require immediate operation. Vomiting may be more relied on than any other single symptom. If the presence of vomiting is significant, so is its absence. We must not, however, wait for this sign before we operate; for if we do so, the only chance to save the patient by operation may be lost. We must remember that the withdrawal of stomach-feeding retards the appearance of vomiting, and when this course has been taken and vomiting occurs, it is probably a fatal sign. Symonds shows that the temperature and the pulse may fall steadily while most dangerous septic conditions are advancing. However, if there is a history of onset of early fever, and the patient is not markedly better after from 4 to 6 days, the absence of fever should not prevent interference.

William F. Metcalf[1] has devised a new method of **intestinal anastomosis.** He uses cylinders of sugar, prepared carefully so as to exclude air-spaces. Around the center of each piece there is a groove $\frac{1}{8}$ in. wide. The ends are cone-shaped. This cone will quickly disappear and will give no further anxiety. When he applies it he stitches the edges of the coats by a sterile catgut stitch, thus preventing the accumulation of fluid and the formation of abscess beneath the mucous coat.

Campbell Ford[2] discusses the **mechanics of stitches** and gives a description of original stitches. His own sutures consist of a single-knot stitch, a double or friction-knot stitch, a square or reef-knot stitch, a granny-knot stitch, and a mattress-stitch. All of these are of universal application. He describes these stitches as follows (Figs. 8–14): "1. *Single-*

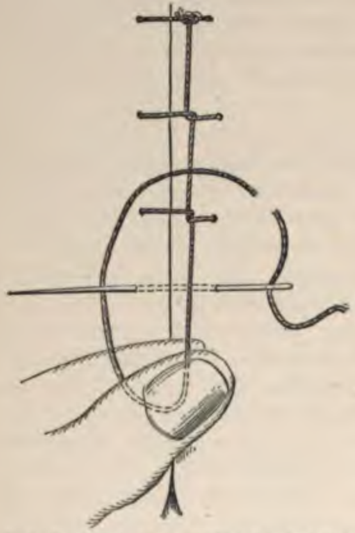

FIG. 8.—Showing a square knot, a single knot, a double or friction knot, and the first method of passing the needle to tie a single knot immediately (Phila. Med. Jour., Nov. 26, 1898).

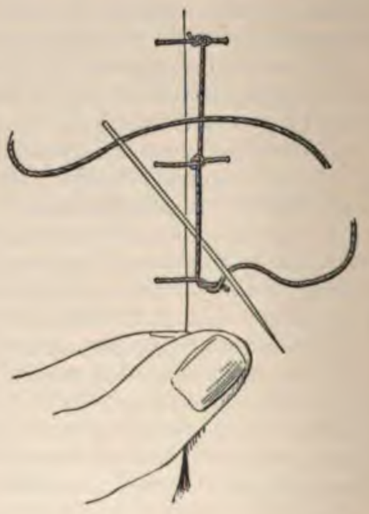

FIG. 9.—Showing two square knots, a single knot, and the method of completing a square knot (Phila. Med. Jour., Nov. 26, 1898).

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[1] Jour. Am. Med. Assoc., Aug. 13, 1898.

[2] Phila. Med. Jour., Nov. 26, 1898.

knot Stitch.—The needle is passed through the divided tissues, and without cutting the thread a square knot is tied. For the second stitch the thread is held or thrown so that the needle will emerge in a loop, and when it is drawn on through a single knot will have been formed. The tension is now adjusted, and for the last stitch a square knot is tied. This may be modified by passing the thread around the needle or the needle around the thread. The tension of the stitches and between the stitches should be equal. 2. *The Square-knot Stitch.*—The same steps are taken as for the single knot, and when it is formed the needle is passed under the thread connecting the knots in the opposite direction from which the

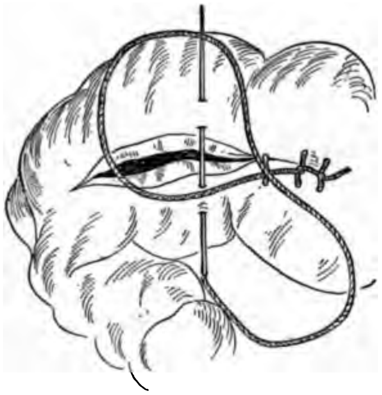

FIG. 10.—Ford's stitch, showing a Lembert insertion and the needle passed so as to tie a single knot by drawing it on through (Phila. Med. Jour., Nov. 26, 1898).

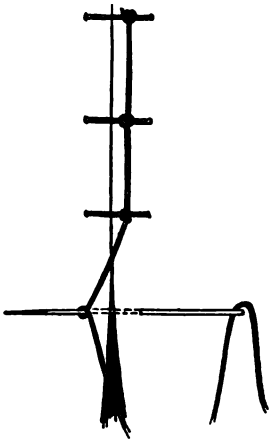

FIG. 11.—One of the two original cuts showing the three square knots and the second method of tying a single knot (Phila. Med. Jour., Nov. 26, 1898).

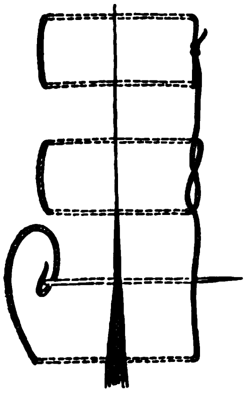

FIG. 12.—Showing the method of taking a back stitch in the mattress-suture (Phila. Med. Jour., Nov. 26, 1898).

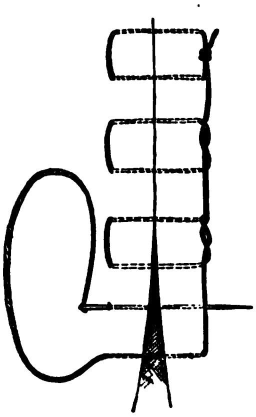

FIG. 13.—Same as Fig. 12, showing a right turn in the single knot (Phila. Med. Jour., Nov. 26, 1898).

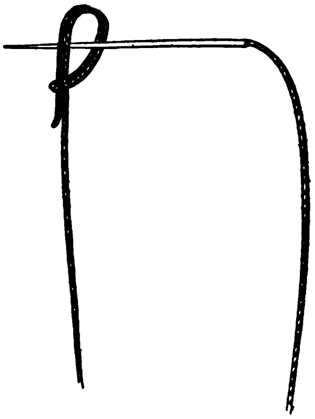

FIG. 14.—Showing the method of forming a loop to tie a square knot immediately for ligating, etc. (Phila. Med. Jour., Nov. 26, 1898).

needle was inserted into the tissues. 3. *The Friction-knot Stitch.*—For the first stitch a square knot is tied; then the needle is passed as for a single-knot stitch, turning the thread twice around the needle instead of once. The last stitch is a square knot. 4. *Granny-knot Stitch.*—A single-knot stitch is formed and the needle is passed in the opposite direction from which it was inserted under the thread in forming a square knot." For some years the mattress-suture inserted by the foregoing methods seemed to be wrong; it would not "lay," and for some unaccountable reason it could not be tied with the same facility as the others. This was very puzzling to Ford. One day, as he was experimenting with a back stitch, he saw that the problem had been solved, and he then could understand the cause of the former difficulty. The peculiarities of the insertion had turned the thread a half-turn. "5. *Mattress-stitch.*—The first knot is tied as before, and for the second the stitch is taken furthest away first, the back stitch is taken next, the needle drawn on through, and any one of the knots formed according to the directions already given. For forming the square knot the following method may be used when sewing in deep recesses, ligating blood-vessels, or when great speed is required. The needle is passed through and drawn out in a double hitch, which is slid down, and when the tension is sufficiently tight a slight pull upon the other end of the thread ties a square knot. Any number may be inserted continuously in this manner. If a clove-hitch be used instead of a double-hitch, a granny-knot will be formed." The value of these stitches has been determined by elaborate experimentation. He says that Downes of Philadelphia has used the single and the double knot of these stitches in performing **circular enterorrhaphy** by end-to-end union in 8 experiments on dogs. The case in hand should determine the choice of the stitch. Ordinarily the square knot is the one preferred. Ford then reports some cases in which these stitches were employed successfully.

Alexander MacLennan[1] offers 2 new modifications of **enterorrhaphy,** after first discussing the advantages and imperfections of the older methods. In his method the treatment of the proximal end of the intestines is of great importance, and this end must be certainly recognized. Into the proximal end is passed a short, light, decalcified-bone tube of a diameter somewhat less than that of the intestine in its normal condition (Fig. 15). The tube is fixed in position by ligating the intestine firmly into the groove *a*, which is not so deep as *b* (Fig. 16). The distal end is treated as follows: About $\frac{1}{4}$ to $\frac{1}{3}$ in. from the edge, at a point opposite the mesenteric attachment, the 2 ends of a loop of silkworm-gut threaded on a needle or silver wire are passed through the entire thickness of the bowel as shown in Fig. 17. The loop is then drawn within the lumen of the gut, and by a backward push is made to distend the wall of the intestine as shown in Fig. 18. When so distended the part of the intestine outside of the loop can be easily involuted into the intestine through the distending ring (Fig. 19). Into this gut-lined ring is next inserted as in Fig. 20 the proximal end, until the wire of silkworm-gut comes to lie round the groove *b* in the bone tube (Fig. 15). The wire of gut is now firmly tied. By this means the invaginated layer of the distal end, together with the layer covering the bone tube, are firmly compressed into the groove. The ligature is cut short, and the small opening through which it is passed is closed by a purse-string suture as in Fig. 23. The mesentery is then united. The author then describes the modification of his first method. The proximal extremity is treated in the same manner. The difference lies in the employment, instead of wire or gut, of a round rubber ring, which is inserted in the distal end from $\frac{1}{4}$ to $\frac{1}{2}$ in. from its free margin (Fig. 21). From $\frac{1}{4}$ to $\frac{1}{2}$ in. of intestine is then invaginated into the ring, and is kept in position by means of 3 or 4 hooks (Fig. 22). These hooks are also used to keep the gut-lined ring sufficiently distended while the proximal end is being inserted. When the insertion has pro-

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[1] Lancet, Feb. 25, 1899.

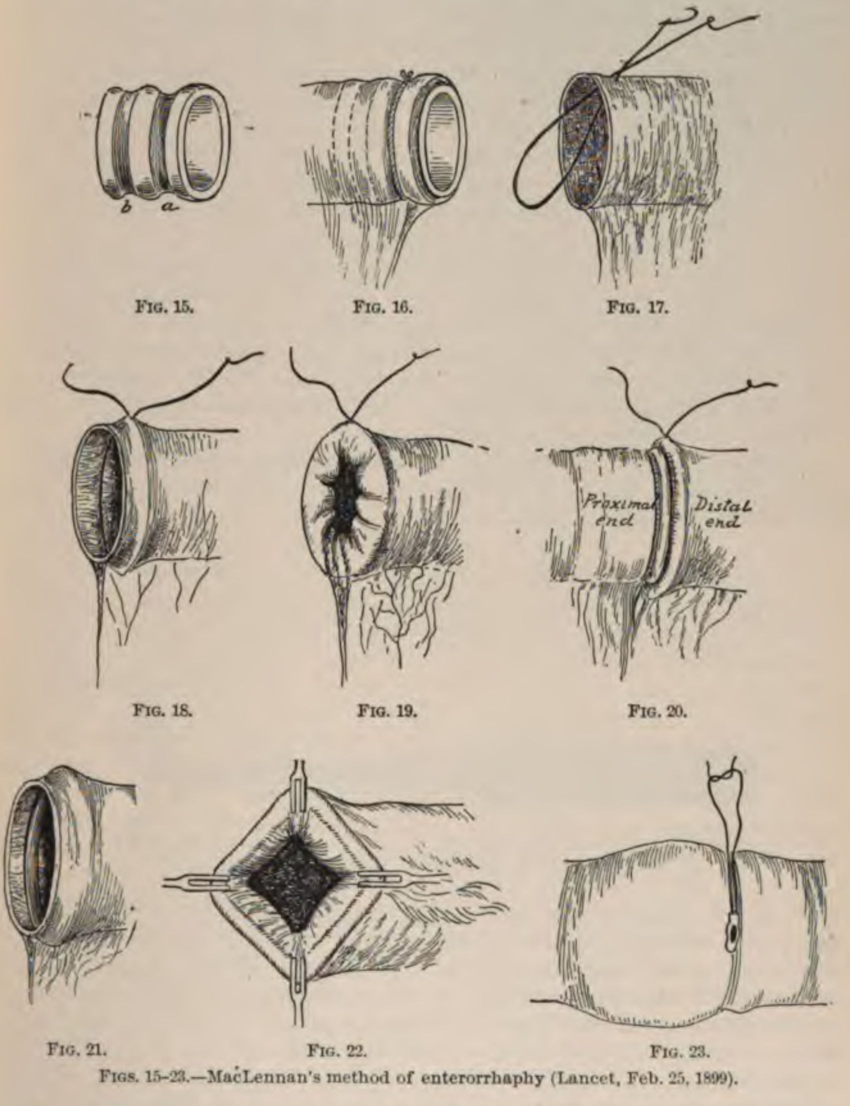


FIG. 15. FIG. 16. FIG. 17.

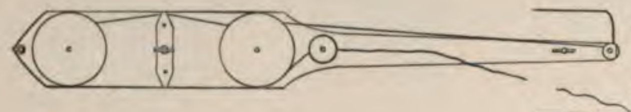
FIG. 18. FIG. 19. FIG. 20.

FIG. 21. FIG. 22. FIG. 23.

FIGS. 15–23.—MacLennan's method of enterorrhaphy (Lancet, Feb. 25, 1899).

ceeded far enough to allow the constricting ring to press the intestine in the groove *b* in the bone tube, the hooks are then removed and the mesentery is united. The author claims that this method is easy and rapid, while the apparatus is of the simplest description. There is the minimum of handling, and therefore the minimum of injury. A safety-stitch over the junction is more dangerous than otherwise. In the second method the progressive nature of the pressure between the serous surfaces at the seat of the union is an advantage. The elastic ring insures uniformity of pressure and prevents any tendency to hemorrhage, which Greig Smith tells us is excessive whenever the bowel is congested; and if hemorrhage occurs after simple suturing, it must cause at least microscopic separation of the two surfaces which have been approximated. The great objection to all methods depending on gangrene for removal of the means of union is the liability of the gangrene to extend beyond the control of the apparatus; and this will be especially apt to occur when the intestine has been subjected to pressure, or when the integrity of the serous surfaces has been impaired by the addition of so-called safety-sutures. The bone tube is a perfect cylinder, occupies the minimum of space, and gives the maximum of union. As the tube is covered with intestine, it is practically not in contact with the healing line. In the second method there is no foreign body other than a flexible rubber ring to be voided, and this cannot give rise to trouble.

Arthur E. Barker[1] describes a **self-feeding needle-holder** by which he is able to apply rapidly a continuous silk suture for the intestine and the mesentery (Fig. 24).



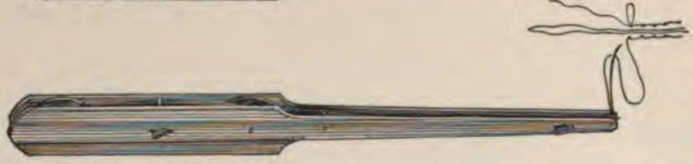


FIG. 24.—Barker's self-feeding needle-holder: the lower blade with the reels *in situ* (half size).
FIG. 25.—Instrument threaded, with needle ready for use (Brit. Med. Jour., July 16, 1898).

Jordan[2] considers the value of the **Murphy button** in view of the experience in Czerny's clinic at Heidelberg. In this clinic it is used in all proper cases, and the time of operation is greatly lessened by its employment. Gastroenterostomy, if the button is used, can be performed in 15 minutes. If the button is used in proper cases, it is free from danger. When he first began to use the button he lost 3 cases because of perforation; but since that time he has employed sutures instead of the button in the large intestine. In more than 100 cases he has not had a single failure. It is absolutely necessary to force the 2 portions of the button closely together, and in most cases supplementary sutures are entirely useless. The button may be passed on the seventh or eighth day, but is not usually passed until the twentieth day. In

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[1] Brit. Med. Jour., July 16, 1898.
[2] Rev. de Chir., supplementary number, 1898.

Czerny's clinic gastroenterostomy with Murphy's button has been performed in 83 cases; 63 for cancerous constriction of the pylorus, 20 for nonmalignant constriction of the pylorus, and the mortality has been 12.5%.

Andrew J. Downes[1] has suggested a modification of the Laplace **anastomosis-forceps.** The Laplace forceps is formed of two complete forceps, the blades of each forming half a fenestrated circle. The two lock together, forming the bowel-blades; circular for end-to-end union, elliptical for side-to-side anastomosis. These forceps contain 5 separable parts. The Downes forceps is simple, and he says it fulfils all the requirements. The end-to-end instrument is a single locking forceps, the bowel-blade forming a fenestrated circle, with a small segment left open for easy withdrawal after use (Fig. 26). When introduced and locked the handle of the forceps should lie as near as possible to the surface of the mesentery facing the operator. We thus obtain the greatest possibility for rotation of the forceps when it is removed. The shorter the instrument the better, and the small open segment of the forceps-blade should face the operator. After the operation has been completed, unlock the instrument and slightly open it. The thumb and index-finger of one hand hold the sutured bowel and the blade as the other hand rotates the handle. This withdrawal is the easiest part of the operation. One or 2 sutures then complete the operation.

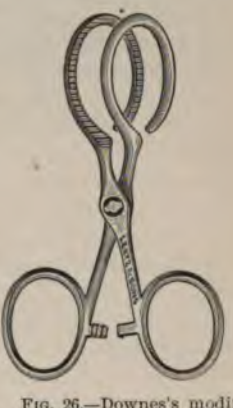

FIG. 26.—Downes's modification of Laplace's forceps for end-to-end union, slightly open (Phila. Med. Jour., Feb. 4, 1899).

Louis V. Genella,[2] in an article called "A Substitute for the Murphy Button," really advises a substitute for the Laplace **anastomosis-forceps,** the instrument being identical with the one described by Downes. His instrument was described before Downes's. He performs his operation in a different way from Laplace and Downes. After the abdomen has been opened and a portion of the intestine resected he punctures a hole or cuts a slip about $\frac{1}{3}$ in. from the cut margin of the gut opposite the mesenteric attachment. He states that this can be most satisfactorily done by the use of an ordinary aspirating-needle. He now takes one of the blades of the forceps, inserts the end of the incomplete circular portion of the blade into the puncture, and by a circular motion raising the handle up places the incompleted circle within the gut. The other blade is inserted into the other end by exactly the same method. The end of each gut is invaginated upon the ring of its contained forceps. The blades of the instrument are brought together and locked, care being taken not to force them too tightly for fear of injuring the bowel. The forceps is applied, the parts of the instruments are unlocked and easily removed, and the operation is completed by suturing the puncture-holes [The principle of these forceps was announced by Laplace, and Genella's and Downes's instruments are but modifications of his. The instrument can be used with facility, and renders suturing easy. It cannot be employed as rapidly as can the Murphy button. The objection to it is that it forms a collar or sort of septum which must be permanent, and which lessens the size of the opening, and may contract and obstruct it. The bruising of the bowel-wall caused by it may do harm or even lead to gangrene. When a very quick operation is necessary the button is the best appliance known.]

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[1] Phila. Med. Jour., Feb. 4, 1899.

[2] N. Y. Med. Jour., Jan. 7, 1899.

E. Doyen[1] describes a new method of **resection** of the **pylorus** and of the **intestine.** He speaks of 2 needful things in this operation being to protect the field of operation from infection due to the escape of contents of the stomach or bowels, and to make the operation as safe as possible. In 1895 he described a curved forceps with elastic and supple blades, by means of which he could perform gastroenterostomy or entero-anastomosis without risk of the escape of the contents of the viscus. The only change he has made in his method of **intestinal anastomosis** is that he now in front of the opening applies 2 instead of 3 lines of suture. By this method intestinal anastomosis can be performed in 10 or 12 minutes. Resection of the pylorus and of the intestine is much more dangerous than is simple lateral anastomosis. We are very apt to get infection of the lines of the posterior suture, and if this occurs it will almost certainly lead to perforation. In Sept., 1897, he suggested the following change in operative technic. The operation was for cancer of the cecum. Two strong pairs of forceps were taken, and 1 was placed above and 1 below the tumor. He crushed the ileum with his clamp-forceps, the peritoneum remaining intact. He ligated the intestine *en masse* at the level of the depression thus formed, and cut between the forceps and the ligature, and at once wrapped the stump on the tumor side in a sterile compress fixed around it with a pair of forceps. In the stump on the upper end he cut away with scissors mucous membrane and cauterized with the thermocautery. He then closed the ileum by invaginating the ligature *en masse* by a double suture of the purse-string variety. The ascending colon was treated in a similar manner, the tumor removed, and the ileum anastomosed laterally to the ascending colon. By slight modification of this method we may aseptically unite 2 ends of the intestine after crushing all the coats, ligating, and cauterizing the mucous membrane. The first 2 lines of sutures are applied on the mesenteric half of the intestine; the deep layer is continued in front within 10 mm. of the point of termination. The 2 ligatures which close the intestine, whose caliber is obliterated not far from them by 2 elastic forceps, are drawn out and cut. The deep layer of stitches is finished, the 2 loops of intestine united in free communication, and then the superficial layer is finished. By ligating the upper end, and closing the lower end by the purse-string suture, we may implant the upper into the lower laterally. Doyen has applied this method to resection of the pylorus with gastroenterostomy, and to the removal of the appendix. The technic is as follows: In resection of the pylorus crush the duodenum and ligate. Apply a pair of forceps below the tumor and divide the duodenum between the ligature and forceps. Asepticize the stump of the duodenum and invaginate it. Treat the stomach and the other side of the tumor in an exactly similar manner. The ligature *en masse* obliterates arteries, and the resection of the pyloric tumor is finished in 20 to 30 minutes. The whole operation requires from 1 to 1½ hours. To perform gastroenterostomy with a direct flow of bile, according to the process of Roux of Lausanne, first do an ordinary gastroenterostomy from the duodenum and then an intestinal anastomosis. The ascending loop is crushed in 2 places between the enteroanastomosis and the gastrojejunal orifice. The ligature is placed in each depression, and the intestine is cut between the 2. The upper and lower ends are closed by a double pocket suture. In resection of the appendix Doyen crushes the base with a pair of strong forceps, applies a ligature, cuts off the appendix, cauterizes the stump, and invaginates by a double pocket suture.

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[1] Brit. Med. Jour., Nov. 5, 1898.

Matthews[1] reports 2 cases of **fecal impaction** in the sigmoid flexure in old men. Each one was apparently due to the use of an excessive oatmeal-diet, and the author concludes that old people especially should not employ an exclusive oatmeal-diet, and that there may be even danger in it for younger people.

Charles H. Frazier[2] reports a case of acute **intestinal obstruction** which was due to a **hernia** of the small intestine through an opening in the mesentery. This patient was operated upon and recovered.

John Barlow[3] reports 2 cases of **intussusception** in infants treated by abdominal section and reduction. Both of them recovered. One was a female 5 months old; the other a male 7 months old. In Case 1, when the child had been fully placed under an anesthetic, Barlow used **hydrogen inflation** without success; but he says that if the child had not been fully under the influence of the anesthetic and the abdominal wall completely relaxed he would have been deceived, and would have believed that he had effected entire reduction. When the abdomen was open, he came to the conclusion from examining the cecum, which formed part of the intussusception, that if he had applied sufficient pressure within the colon to have broken down the adhesions, there would have been risk of perforation. In Case 2 inflation was not attempted, as there was obviously a large amount of invaginated bowel, and in such cases inflation is uncertain and not unattended with danger. The author states that by performing abdominal section we are enabled to determine whether reduction can take place by combining gentle traction on the ileum with compression of the intussusception, a combination not obtainable by the use of inflation or injection; and the surgeon can, if it is necessary, suture perforations or resect.

Von Eiselsberg,[4] from a study of 6 cases of acute **intussusception,** has concluded that the following is the proper plan of treatment: Each of his cases was at the ileocecal valve, and in each case a tumor was felt more or less distinctly. No irrigation was employed, but the abdomen was opened and attempts made to reduce the invagination. If this attempt is successful, the intestine should be sutured to the wound. In other cases resection should be performed, and if there is much rectal prolapse the invagination ought to be resected with partial resection of the intestine. The last resort is the operation of **enteroanastomosis,** which is greatly preferable to the formation of an artificial anus.

Burwinkel[5] writes upon **ulcer of the duodenum.** This condition, he tells us, is not so common as gastric ulcer. The ulcer is usually single, but there may be multiple ulceration. Duodenal ulcer is occasionally associated with gastric ulcer. Burwinkel tells us that every ulcer of the duodenum does not necessarily perforate, and he reports 5 cases which he feels certain were instances of duodenal ulceration. He brings out the following points of diagnosis: 1. Melena. In these cases it was certain that the blood did not arise from an intestinal ulceration, and must have come from the duodenum or stomach. It was not apparently from the stomach, because, although it was very profuse, there was no vomiting of blood. 2. The pain appeared several hours after taking food; was in the situation of the duodenum; was occasionally slight and occasionally violent. 3. The existence of dyspepsia for a considerable period. 4. All these cases were in men. The youngest was 33 and the oldest was 60. Duodenal ulcer gives a worse prognosis than gastric ulcer, and the physician must recognize that there are 2 forms: the perforating and the chronic. The perforating ulcer, as a rule, causes general peritonitis, although in ordinary instances it may lead to the formation of local abscess. Stricture of the duodenum has followed on the healing of one of these ulcers. The treatment of such cases is the same as the treatment for gastric ulcer.

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[1] N. C. Med. Jour., Jan. 5, 1899.
[2] Phila. Med. Jour., Jan. 24, 1899.
[3] Lancet, Feb. 4, 1899.
[4] Jour. Am. Med. Assoc., Feb. 18, 1899.
[5] Deutsch. med. Woch., Dec. 29, 1898.

K. G. Lennander[1] writes upon **perforating duodenal ulcer.** He says that the diagnosis of perforating ulcer of the stomach or duodenum rests upon the history and upon the onset of violent epigastric pain, which may or may not be accompanied by pronounced shock, vomiting, tenderness in the epigastric region, and rigidity of the belly-wall. If we only see a case which is in an advanced stage and is accompanied with peritonitis, the diagnosis will depend chiefly on the manner in which the peritonitis spreads. Statistics show that from one-quarter to one-third of the cases operated upon recover. Therefore the chief point to insist on is that when symptoms of perforation are met with operation should be promptly performed. If operation is refused or is impossible, no food should be given by the mouth for at least a week, the patient being fed by nutritive enemata. Most of the deaths which follow perforation are due either to diffuse peritonitis, subphrenic abscess, or pelvic abscess.

A. Kerr[2] reports a remarkable case of **emphysema** as a sequel of malignant disease of the sigmoid flexure. The patient died of cancer of the sigmoid, and before dying there was noticed extensive emphysema with characteristic crepitation over the whole of the left side and back, extending from the axilla and front of the chest to the left iliac region in the front of the abdomen. On making a postmortem examination air was found in the tissues of the chest-wall, and at the lower and back part of the chest there was obvious suppuration. In the left iliac region a cavity was found containing liquid fecal matter and gas, and on the floor of this cavity a small opening communicated with the intestine. The sigmoid flexure was found to be the seat of a cancer involving the whole circumference of the bowel, and causing great narrowing. The surface of the tumor was ulcerated at a point where it adhered to the abdominal wall, and there was a small opening leading to the cavity and the surface. In this case extensive emphysema arose from communication between the tissues of the abdominal wall and the bowel.

[1] Wien. med. Blätt., Feb. 2, 1898.

[2] Lancet, Nov. 26, 1898.

C. B. Porter[1] writes on the treatment of **intestinal fistula** and **artificial anus.** He says that the important steps in the operation are: To prepare properly the bowels and the skin of the patient, to dissect up a button of skin and suture it so as to close temporarily the fistula, to enter the peritoneal cavity some distance from the fistula, to avoid adhesions, and to explore with the finger as a guide within the cavity, freeing the adhesions so that the intestine and the fistula can be brought out of the peritoneal cavity, carefully walling off the peritoneal cavity from the seat of operation, special care in suturing the mesenteric border, freshening the muscular edges of the wound, careful cleansing of the sutured bowel before returning it to the abdomen, and the firm suturing of the peritoneal wound. In some fistulæ the operation described above is impossible. Such cases involving the large intestine, of which the mesentery is often too short to allow the bowel to be brought out of the peritoneal cavity; or the peritoneal coat may be destroyed, making it impossible to bring together healthy peritoneal surfaces, which is a necessity to insure union. These cases can be treated by intestinal anastomosis and exclusion of the diseased portion of the intestine. When there is a tortuous sinus in the abdominal wall, this must be freely incised down to the intestinal opening before we decide what operation we will perform. Porter has never had a case in which it was necessary to perform exclusion.

Rutherford Morison[2] reports 3 cases of **fecal fistula** treated by operation. The first was a fecal fistula resulting from tuberculous bowel disease. In this case he made an elliptical incision round the fistula and the infiltrated skin. The ends of the ellipse were then carried anteriorly to the midline, and posteriorly to the back of the iliocostal space. The abdominal cavity was opened in this line and packed off with gauze. He found that the cecum was adherent to the abdominal wall, and also a loop of ileum 1 foot from the ileocecal valve, and that both of these intestines were infiltrated with tubercle. The ileum was divided on the proximal side of the fistula, and the diseased portion, with 18 in. of healthy bowel between it and the diseased cecum, was separated from its mesenteric attachment up to the cecum. The ascending colon was then divided beyond the diseased cecum, and the cecum was removed still attached to the ileum, and along with the cecum a large tuberculous gland was taken out of the mesocecum. The open ends of the intestine were closed, and a lateral anastomòsis was made between the ileum and the transverse colon. This patient was cured. The second case was a fecal fistula at the umbilicus following a ruptured abscess. An elliptical incision was made around the umbilicus, including the opening of the fistula, and the umbilicus and the opening of the fistula were excised. The incision was prolonged down to the pubes in the middle line, but because of adhesions it was not possible to enter the peritoneal cavity. The incision was then extended upward, and the abdominal cavity was entered above the umbilicus. A sinus was found in the subperitoneal tissues, extending from the region of the umbilicus to the right iliac fossa and into a coil of ileum which adhered there. The ileum was separated, and the opening in it closed by a continuous catgut suture through all the coats, and outside of this were applied interrupted Lembert sutures transversely to the axis of brane which protrudes is grasped with forceps and cut off, and a broad denuded surface is left. A very thin or very much infiltrated portion of the intestine should be resected, and then the intestinal wall can be well approximated by a double row of continuous Czerny-Lembert sutures. The deep row touches the margin of the mucous membrane, but does not include it. The second row unites the serous and muscular coats above. We should not have too many sutures, as they may interfere with the blood-supply. The edges of the abdominal wound are next united, and this often requires excessive liberation because of tension. If tension persists, the wound-edges will undoubtedly separate. The muscular tissue and integument are then sutured. A few hours after operation the patient can be given cold milk, wine and bouillon, and opium and bismuth are administered to lessen peristalsis. Three days after operation the patient can be given soft-boiled eggs, meat, and farinaceous food.

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[1] Boston M. and S. Jour., Nov. 25, 1898.

[2] Lancet, Sept. 10, 1898.

Christian Fenger[1] writes on enteroplastic operation to overcome a partial stenosis, with special reference to the spur in **preternatural anus.** He says the principle of **overcoming a stenosis** by transverse union of a longitudinal incision is applicable to any portion of the intestinal canal below the duodenum. "The longitudinal incision or opening should be made in the middle of the convex surface—that is, equidistant from the two sides of the mesentery—so as not to interrupt blood-supply by the division of large vessels in the intestinal wall. Free mobility of the loops of intestine and intact peritoneal covering are desirable conditions; but the latter is not absolutely necessary. In places where the intestine has no mesentery, and where there is a limit to the infolding or bringing into apposition of the convex surface or the surface of the intestine opposite the mesentery, as the cecum, extraperitoneal border of the rectum, or flexures of the colon, there is a limit to the length of the longitudinal incision. In an organ so free and movable as the small intestine, I see no reason why I could not unite the convex surface to an extent of 5 or 6 in. or more, if this would be desirable. In fact, I see no other limit than that of the length of the mesentery, the time required for suturing, and the length of the wound. It is evident that the length of the longitudinal wound should not be unnecessarily great. When there is no mesentery, and consequently only slight mobility, for folding in or apposition of the convex free surface of the intestine, or when the mobility is diminished or lost by diffuse inseparable adhesions, there is, of course, a limitation to the application of this principle. In 1 case of stenosis of the cecum from tuberculosis, with remittent attacks of pain from incomplete occlusion, in which I did not deem excision of the cecum advisable, I made this plastic operation, uniting transversely an incision of about 4 cm. in length. The operation gave partial relief only, and a fecal fistula resulted, necessitating an ileocolic anastomosis, which was followed by relief of the symptoms of the stenosis, and left the fistula, which secreted mucus as a rule, with very rarely some fecal matter. Tension in the united wound and lack of free fecal passage at the place of operation are, when the sutures are applied correctly, undoubtedly the main cause of non-success; that is, of spontaneous reopening of the sutured intestine. This plastic operation, when applied to resection and circular suture, will enable us to avoid narrowing of the intestine by folding in of its wall at the place of suture.

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[1] Am. Jour. Med. Sci., Apr., 1899.

1898, Keen collected 83 cases operated on, with 16 recoveries. Platt has added to this list other reported cases, giving 103 operations with 21 recoveries.

Harvey W. Cushing[1] writes upon **laparotomy for intestinal perforation in typhoid fever,** and reports 4 cases. The first case was a very extraordinary one. The patient was a boy, 9 years of age, and the perforation occurred at the end of the second week of the disease. His temperature was 105° F., and there had been no fall. His pulse was 170. He complained of colicky pain in the belly, was restless and cyanotic; there was no abdominal rigidity, but considerable tenderness, which was most marked on the right side. Pressure upon the rectovesical cul-de-sac by means of a finger in the rectum caused much pain. There was some increase of dulness in the flanks, but no shifting dulness. Liver-dulness was not obliterated. The leukocytes numbered 16,000. Median laparotomy was performed, the perforation was found and sutured, and the peritoneal cavity was flushed and drained. Three days later a fecal fistula formed, which closed spontaneously. Cultures from peritoneal fluid remained sterile. Six days after the first operation a positive Widal reaction was obtained. Symptoms of perforation again appeared 13 days after the first operation. The abdomen was opened, but no perforation was found. Two days later obstruction occurred; the abdomen was again opened, in spite of the fact that the patient was almost *in extremis.* The obstruction, which was due to adhesions about a perforation, was relieved, and a second perforation was found and sutured. This patient recovered. This is a most remarkable case in many ways. Early perforation is unusual in a child. The symptoms were positive (early vomiting, prostration, abdominal pain, tenderness, and leukocytosis). It is interesting to note that slight abdominal pain preceded the actual occurrence of perforation for several days. This was probably due to the approaching ulcer establishing local peritonitis. Such pain should always put a physician on his guard. Because of early recognition, the perforation in this case was sutured before peritoneal infection occurred. The subsequent perforation of a neighboring ulcer shows that at the first operation it would have been well to suture any thin patches which seemed liable to be perforated (as has been done by Sifton and Hill). This was not done because there were several such points, and the patient's condition was such that prolongation of the operation was considered unjustifiable. The leukocytosis, which seemed a guide to the first operation, was misleading in the second, when, in spite of the fact that the leukocytes numbered 20,000, no inflammatory reaction was found to account for the increase. The perforation in this case was not associated with an early drop in temperature. One of the first symptoms of the obstruction was a fall of 4° F. of temperature. This case showed Cushing that the median incision is not the proper one, as the lesions occur almost certainly in the right iliac fossa. A laparotomy in typhoid fever, if it is performed before the occurrence of septic extravasation, is not much more risky than is a laparotomy in any other febrile state; but one drawback is that the bath-treatment cannot be subsequently employed. There is but a single other case in literature in which a second laparotomy was performed (Bogert's case). The second case reported by Cushing was a boy of 18. Perforation occurred in the fifth week. The onset of the perforation was not recognized, and the condition was discovered when extravasation had occurred, as shown by the existence of free and shifting fluid and obliteration of liver-dulness. There was no abdominal tenderness and no leukocytosis, but there were vomiting, abdominal pain, and diarrhea. The patient's condition was desperate. Laparotomy was performed under cocain. General peritonitis existed. Three perforations in the ileum were sutured. The bowels were cleansed and the abdominal cavity irrigated. Drainage was introduced. The patient died 4 hours after operation. Cover-slip preparations showed a great variety of organisms (cocci, bacilli, and pus-cells, but no streptococci). Nothing was grown on the culture but the colon-bacillus. The third patient was a negro of 31. Perforation occurred at the end of the fourth week, after prolonged abdominal symptoms. He had abdominal pain for some time, but there were no objective abdominal symptoms. There was persisting leukocytosis (15,200). The perforation is supposed to have taken place at a time when the temperature dropped at night. Unfortunately he seemed better in the morning, and his leukocytosis had disappeared. During the next night symptoms of perforation arose (marked abdominal pain, pulse 120, vomited once, no abdominal respiration, abdomen not full, but generally tender, tenderness most marked in right iliac fossa, movable dulness in right flank, liver-dulness lessened). Laparotomy was performed. General peritonitis existed. A perforation of the ileum was sutured. Cover-slips from the seropurulent fluid in the peritoneal cavity showed numbers of streptococci and other pleomorphic organisms. Cultures showed Streptococcus pyogenes. Patient died in 8 hours. The postmortem showed a second threatening perforation a little above the ileocecal valve, enlarged mesenteric glands (1 was suppurating), healing ulcers in the cecum and appendix, general fibrinopurulent peritonitis, enlarged spleen, and ileocolitis. This case exemplifies the reality of a recognizable condition known as the **preperforative stage of ulceration.** It seems certain that, owing to the extreme ulceration of the ileum and appendix, some inflammation of the serosa, limited by adhesions, took place, and was responsible for the abdominal pain, tenderness, and leukocytosis of several days' duration. It would have been better to have operated early. An interesting feature of this case is the steady drop in the number of leukocytes after the occurrence of perforation and with the onset of general peritonitis. It is well known that in appendicitis the leukocytosis which, is marked before perforation, drops after perforation, and often completely disappears with the onset of general peritonitis. In suspicious cases baths should be discontinued. The fourth case was in a girl of 15 years. In the fourth week she was seized with sudden pain, vomiting, distention, and some rigidity. The leukocytosis had been 16,000, and dropped to 11,000. The abdomen was opened; the finding was negative. The patient recovered. Cushing says there are 2 distinct varieties of perforation, in which the operative prognosis is very different. In the appendicular form the process takes place in a corner of the abdomen, and is apt to remain localized by adhesions for some time. In such cases preexisting appendix-trouble may predispose to perforation, the condition being acute **perforative appendicitis** occurring **during typhoid.** In the other form the perforation almost always occurs in the free-moving bowels, usually the lower 12 in. of the ileum, and produces rapidly general peritonitis. In both varieties operation should be at once performed, but results will be better in the first form than in the last. The most recent statistics are those of Westcott, given by Keen (1898). These, in 83 collected cases, show 19.28% of recoveries. Cushing discusses the **diagnosis of perforating typhoid ulcer.** The symptomatology is usually given as follows: "During the course of the fever, usually in the third week of a severe attack, most often in male adults, there appears with sudden onset abdominal pain, usually in the right side, associated with more or less tenderness and rigidity. Vomiting follows with more or less irregularity. The onset may be associated with a chill and pyrexia, or with cold extremities, collapse, and a drop in temperature, often of several degrees. The pulse becomes small and wiry. Leukocytosis is supposed to make its appearance, and soon more or less abdominal distention sets in with increase of vomiting, shifting dulness in the flanks, obliteration of liver-dulness, a gradual return of pyrexia if there has been a fall, with rapid, feeble pulse, restlessness and thirst, all indicative of general peritonitis, with death supervening in 24 to 48 hours." A sudden acute onset of pain is significant; but this may be absent or may be overlooked because the patient is stuporous. Any complaint of pain, even of less abrupt onset, if associated with tenderness, should cause the greatest suspicion. A preperforative stage often exists, and in this stage an operation should be performed if possible. A not unusual symptom of perforation is a great drop in central temperature; but more importance has been attached to this symptom than it deserves. Dieulafoy thinks it an infallible sign. He says that the appendicular attacks occurring in the course of the fever show a rise of temperature, and may thus be distinguished. Cushing says a fall of temperature may not take place in perforation, and it occurs in other conditions, such as hemorrhage. Vomiting is often absent. It is an important symptom when present. Cushing's conclusions as to leukocytosis are as follows: "1, the appearance of leukocytosis in the course of typhoid fever points to some inflammatory complication in its early stage; 2, if this complication is a peritonitis and remain localized, associated possibly with a preperforative stage of ulceration (Case 3) or with a circumscribed, slowly forming peritonitis after perforation, it may be and usually is signalized by an increase of leukocytes in the peripheral circulation; 3, if, however, a general septic peritonitis follow, the leukocytosis may be but transitory and overlooked, as it disappears concomitantly with the great outpouring of leukocytes into the general cavity." The author's conclusions are: The diagnosis of intestinal perforation in typhoid fever may present many difficulties. No abdominal symptoms, either subjective or objective, occurring in the course of the fever should be regarded as trivial, and a sudden change of any sort in the patient's condition should lead first of all to the suspicion of this most serious complication. A distinction should be drawn between the 2 varieties of perforation—the appendicular and those occurring in the free bowel, as their symptoms, course, and prognosis vary considerably. Many cases, however, even those of perforation from the free bowel—present what may be recognized as a preperforative stage, which in some cases calls for a laparotomy, in anticipation of a complete perforation with extravasation. The presence of leukocytosis is not an infallible sign of perforation, as it may disappear with the onset of general peritonitis. It is most valuable in this anticipatory stage. When the diagnosis is made operation is indicated, whatever the condition of the patient. A precocious exploration from an error in diagnosis is not followed by untoward consequences, such as must invariably be expected after a neglected and tardy one. Our present knowledge amply corroborates the statement of Mikulicz made at Magdeburg in 1884: "If suspicious of a perforation, one should not wait for an exact diagnosis and for peritonitis to reach a pronounced degree; but, on the contrary, one should immediately proceed to an exploratory operation, which in any case is free from danger."

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[1] Johns Hopkins Hosp. Bull., Nov., 1898.

APPENDICITIS.

A Hermann[1] reports a case in which **perityphlitis** was evolved with all the symptoms of a tuberculous peritonitis. The man was 45 years of age when he came into the hospital, with a fever resembling that of tuberculous peritonitis. There were pain in the abdomen and distention with ascites. As the symptoms evolved, the diagnosis of tuberculous peritonitis seemed to be certain; but the autopsy showed that the case was appendicitis with perityphlitis, and death was due to thrombosis of the ileocecal and portal veins, accompanied by abscess of the liver.

V. Duchamp[2] reports a case of **appendicitis** in a boy of 13, in which the abscess pointed in the anterior wall of the rectum. In this case a hypodermic needle was inserted and revealed the presence of pus; the mass was opened by a longitudinal incision, and a drainage-tube was introduced and sutured to the mucous membrane. This procedure was originally recommended by Jaboulay. [Recently, in the Jefferson Medical College Hospital, a similar case was operated upon in a like manner.]

Küster[3] disapproves of the use of the term appendicitis. He says that German anatomists do not use the term appendix at all; and they object to using it because a similar word is used to designate the fatty collections found upon the large intestine. The word appendicitis combines a Latin root with a Greek ending, and is therefore inapplicable. The Greek anatomists made their studies chiefly upon animals, which do not possess a vermiform appendix; hence they did not name this structure. A proper name for it, according to the custom of Greek, would be "epityphlon"; that is, something upon or outside the surface of the cecum. Küster suggests the employment of the term **"epityphlitis"** instead of appendicitis.

A. H. Cordier[4] reports a case of typhoid fever which lasted 6 weeks, the temperature being typical and the Widal test being noted. Tenderness was complained of over the appendix; the abdomen was rigid and a mass could be detected in the iliac region. Operation disclosed the fact that an ulcer had almost penetrated the appendix.

Dieulafoy[5] reports 2 interesting cases of appendicitis. In each case the patient had the unmistakable symptoms of appendicitis, except that there was no fever. Operation in both cases showed that there was pus and that the appendix was about to perforate, and if operation had not been performed

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[1] Prag. med. Woch., p. 109, 1899.

[2] Loire méd., Dec. 15, 1898.

[3] Centralbl. f. Chir., No. 50, 1898.

[4] Kansas City Med. Index, Oct., 1898.

[5] Jour. de Méd., Sept. 10, 1898.

diffuse appendicitis would inevitably have occurred. In the second case a diagnosis was difficult. Two years before, the patient had had an attack of vomiting and constipation associated with diffuse pains in the right portion of the abdomen. Some little time subsequent to this he had a second attack; then a third attack, in which the attending physicians were in doubt as to whether there was hepatic or nephritic colic. Then there was a fourth attack with severe pain in the testicle, and the physician made a diagnosis of nephritic colic. In this case the diagnosis lay between appendicitis and nephritic colic, and were it not for the testicular pain a diagnosis of appendicitis would have been unhesitatingly made. Dieulafoy has noted **testicular pain in** attacks of **appendicitis.** Three times he has seen cases accompanied by testicular retraction. The important point in this case was that the kidney was not painful. In nephritic colic the kidney is always more or less painful. The pain in nephritic colic comes on suddenly and very rapidly attains its height of severity. The pain of appendicitis increases progressively, although with considerable rapidity. The pain of nephritic colic ceases suddenly; the pain of appendicitis abates gradually. Dieulafoy made in this case a diagnosis of appendicitis, and operation showed that he was correct. The appendix was the shape of a club and was filled with fluid; the canal was obliterated and the organ lay upon the posterior portion of the cecum adherent to the iliopsoas muscles. The genitocrural nerve was near it; as a branch of this nerve is sent to the cremaster and the testicle, the testicular pain is thus explained.

Dieulafoy[1] speaks of a form of appendicitis which he calls **"toxic appendicitis."** In this condition there are jaundice and some albuminuria; or, it may be, symptoms produced by the action of toxins on the brain, cord, and medulla. He states that the existence of such a toxic form is proved by experiment and by clinical observation, and that the intoxication may be slight or intense, or may produce death. In the milder cases there are a slight icterus, albuminuria, and urobilinuria. The jaundice means that some trouble is taking place in the liver, and it is occasionally a warning of the onset of a very grave form of intoxication which attacks the nervous system, the symptoms of which may be medullary or typhoid in nature. The only means by which these conditions can be prevented is the removal of the infected area. With a carefully made diagnosis, it is proper to operate in order to prevent such conditions. In fact, Dieulafoy says that an operation performed at a proper time prevents all accidents, and that no person should die of appendicitis. [The statement that no person should die of appendicitis is to our own mind absurd. As well say that no ship should be lost.]

Dieulafoy[2] writes on "the treacherous **lulls of appendicitis."** He says that the positive symptoms of the disease—the pain, the vomiting, and the fever—often abate or disappear and the patient feels much relieved; but this apparent improvement does not always mean real improvement. It is frequently a treacherous and deceptive condition, a condition which may exist when most dangerous changes are taking place in the appendix—when there is gangrene of the appendix, peritoneal septicemia, or diffuse peritonitis. This lull is an abatement of the symptoms, but is never a complete abolition of them, some symptoms persisting; for instance, the abdomen remains somewhat tympanitic, rigidity does not entirely disappear, the pulse remains somewhat rapid, and albuminuria and urobilinuria are by no means unusual. This treacherous lull may be brought about by the use of morphin and the application of ice-bags, the important signs of danger being thus masked. The lull may come at various periods after the onset of the disease. Very often the symptoms of appendicitis and of peritonitis are exactly similar, and it is impossible to tell the moment that peritonitis begins. These lulls are the most usual cause of death, because the average physician regards the onset of such a lull as justification for the postponement or avoidance of surgical operation, and lamentable accidents are apt to arise which surgery is helpless to combat. The author concludes that we must be on the watch for these treacherous lulls; must be able to recognize them when they come; and should operate promptly in order to save the patient from the danger of grave accident.

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[1] Gaz. des Hôpitaux, Nov. 10, 1898. [2] Bull. de l'Acad. de Méd., Feb. 28, 1899.

John Homans[1] speaks of the necessity of **removing the appendix at the first operation,** and advocates this procedure. Experience has shown him that until the appendix is removed, there is no assurance of freedom from a fatal attack. He does not assert that every case should be operated upon as soon as seen; but he does say that whenever an operation is done for the first time the appendix ought to be removed. Not unusually in a case of appendicitis we can say positively that we believe things will quiet down, and the appendix can be removed safely a week or two hence. This is often the wisest course; but if an abdomen is opened to empty an abscess or to cure peritonitis, then the appendix should be removed at that time, even if it requires much searching to discover it. If left, it will be a source of infection; and it may, and very likely will, cause a subsequent and possibly fatal attack. All surgeons can recall cases in which patients have recovered from attacks of appendicitis after an abscess had been opened and drained. Subsequently many of these persons have become so uncomfortable that life has not been worth living, and they have obtained no relief until the appendix has been removed. Other cases can be remembered in which operation has been done, the appendix has been allowed to remain, and the patients have been apparently cured, and yet a second or a third attack has been fatal; these fatal attacks may come on months or years after the first one.

G. M. Edebohls[2] calls attention to the fact that **chronic appendicitis** may be the chief symptom and most important complication of **movable right kidney.** He says that in 80% or 90% of women who have a right kidney sufficiently mobile to produce symptoms, there is present also chronic appendicitis. Hence, chronic appendicitis is one of the chief symptoms of movable right kidney; and when we think of the frequency of chronic appendicitis in movable right kidney, the suffering and impairment of health which it brings about, and the dangers of possibly acute attacks, we must look upon it as the most important complication of movable right kidney. In 20% of all women movable kidney or kidneys occur, and 4% of all women have symptom-producing movable kidney or movable kidneys, and the same number have appendicitis; while 3.5% of all women have symptom-producing movable kidney with appendicitis; 0.5% of all women have appendicitis with well-fixed kidneys. The relation of movable kidneys in appendicitis could only be determined after Edebohls had worked out and elaborated his method of palpating the vermiform appendix, and to those who cannot carry out this method of palpation, investigation on this point is impossible. Chronic appendicitis may be the only symptom of a movable right kidney; and symptoms which are often assigned to movable kidney may be really due to chronic appendicitis.

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[1] Boston M. and S. Jour., Feb. 2, 1899.

[2] Post-Graduate, Feb., 1899.

William B. Small[1] discusses the **traumatic origin of appendicitis.** He believes that traumatism is often an important element in the production of the disease. The idea that foreign bodies cause the disease has been largely abandoned. The theory which is still widely believed is that the real cause of appendicitis is catarrh of the cecum, and epidemics of influenza with enteritis are supposed to explain the marked increase of the disease in recent years. But this does not explain why such a large percentage of the cases are found in young, strong adult males. Small thinks that the reason of this is that such people are exposed more to injuries and strains, the increase of abdominal pressure thus brought about forcing some of the cecal contents into the appendix. He reports 13 cases in which there appeared to be clear histories of traumatic causation of the disease. His conclusions are as follows: 1. Catarrh of the bowels—it may be accompanying or resulting from grip—is responsible for a large amount of the increase in appendicitis. 2. Injuries, strains, and work requiring powerful contraction of the abdominal muscles explain the greater frequency of the disease in males. 3. Such injuries and strains act by forcing material from the cecum into the appendix, which material is filled with the bacteria that cause appendicitis. 4. Because of the irritant properties of such material, or for some other reason, these germs find a favorable soil for their development. 5. As in other germ-diseases, there is a period of incubation before marked symptoms of appendicitis appear. 6. Appendicitis is of increasing medicolegal importance, as many cases are caused by traumatism, and may give rise to damage-suits or claims against accident and insurance companies.

James F. Mitchell[2] presents an elaborate study in regard to the presence of **foreign bodies in the vermiform appendix.** Opinions have greatly altered in recent years as to the frequency with which foreign bodies other than fecal concretions are found in the appendix. At one time it was believed that a foreign body was necessary to the production of an appendicitis, the seed of an orange, a grape, a date, or a cherry being often described. Many of these described foreign bodies were really fecal concretions, which are likely to assume these shapes. From this extreme position we have now gone to another, many writers stating at present that foreign bodies are never found as a cause of appendicitis. In fact, in 250 cases of appendicitis in the Johns Hopkins Hospital in the past 10 years, there has been only 1 foreign body found, and that was a segment of a tapeworm. Mitchell has collected 1400 cases from various sources, and finds that in about 7 % there were true foreign bodies; while in 700 of these cases in which a definite statement was made as to the nature of the foreign body, there were 45 % of fecal concretions. Undoubtedly many queer and interesting objects may be found in the appendix tion which covers the head and shaft and leaves the point free. In 7 out of the 28 cases there was abscess of the liver. The author gives the following conclusions: Foreign bodies, at one time thought essential in the production of appendicitis, are now known to play a smaller role than was formerly assigned them; and fecal concretions are known to be much more apt to be present as an exciting cause. While many curious objects are occasionally found in the appendix, the organ nevertheless would seem to act as a trap for pointed bodies, and for some heavy bodies like shot or bullets. Conspicuous among pointed bodies are pins. Foreign bodies of light weight, such as grape-seeds and cherry-stones, are only very exceptionally found in the appendix; and the frequency of their presence is much exaggerated, because fecal concretions may closely resemble them, and many such concretions are not carefully examined. The author then reports the details of 35 cases in which foreign bodies were found in the appendix.

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[1] Med. Rec., Sept. 10, 1898.

[2] Johns Hopkins Hosp. Bull., Jan., Feb., and Mar., 1899.

HERNIA.

J. Chalmers DaCosta[1] reported to the Philadelphia Academy of Surgery a case of **enormous hernia** greatly benefited by operation, and a case of strangulated hernia in which operation disclosed purulent clots in the accessory veins of the cord. Cultures from these clots showed the presence of Staphylococcus pyogenes albus. The third case was a remarkable one: "This man was a laborer, 48 years old, who suffered from prolapse of the mucous membrane of the rectum. He was operated on in the Jefferson Medical College Hospital a number of weeks before by the use of a cautery, but the operation had failed to cure the prolapse, and he came again into the hospital for the purpose of having it removed. He had had for a considerable length of time a reducible hernia of the left side. The prolapse was excised and the mucous membrane sutured. He did very well for 3 days, except that he coughed a great deal. On the evening of the third day, while having a violent attack of coughing, he was seized with pain in the abdomen, and found that the rupture had come down, that it was painful, and that he was unable to reduce it. He called for the resident physician, who made an attempt to reduce it, but failed. While manipulating the hernia the resident physician was surprised to hear and feel a crackling when he pressed on the mass, as if air were diffused through the tissues. On reaching the hospital DaCosta examined into and confirmed this fact. There was distinct **crepitation** that could be heard and felt. It seemed to be deep within the sac. This crackling could be traced from the left to the right side, apparently along the course of the colon. The question as to what had happened was doubtful. The first thing thought of was that some stitches put in at the operation had given away, and that during the fits of coughing air had been diffused into the subserous tissue. On examining the stitches they were found intact. Inability to reduce the hernia determined operation. An incision was made, the hernia exposed, and the sac opened, when the hernia was found to be composed of the large bowel, and within the mesocolon was a collection of air which crackled when pressed on; it contained air in what looked like bubbles, opalescent bits like large globules of milk. DaCosta introduced his hand into the abdomen, and was able to discover that the ascending, transverse, and descending mesocolon and the mesorectum were in the same condition. In fact, the distention was so great downward toward the pelvis that it was difficult to pass the hand. The wound was closed and again examined. Upon examination of the rectum there was found above the lines of stitches an ulceration which had apparently followed the cauterization; when the bowel was pressed upon air escaped from the ulcer in distinct bubbles. A tube was introduced into this opening and carried into the subserous tissue, and in the course of 4 or 5 days this very large collection of emphysematous material passed away and the individual recovered. It is very strange that no infection of the subserous tissue followed."

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[1] Ann. of Surg., Feb., 1899.

Championnière[1] believes judicious **bicycling** to be of benefit **in hernia.** It strengthens the abdominal muscles and improves the general health, and has not the disadvantages in a hernia-case which attend exercise while standing. Soon after a radical cure the patient should begin to use the bicycle.

C. Kaufmann[2] writes on **accidental hernia.** He inquires, When is a hernia to be regarded as an accident for which an insurance company must make compensation? 1. It is not sufficient to prove that a hernia appeared during ordinary work; there must be proof of an accident, direct or indirect violence, or a severe sprain. 2. It must be proved that the hernia appeared suddenly, was accompanied by tenderness about the rings, and by such severe pain in the same regions that work had to be abandoned. 3. Examination should be made soon. It is suspicious if the patient does not early seek medical aid. The Germans believe that in every hernia due to such accidents there is incarceration; and if incarceration is absent they hold that accident did not cause the rupture. This point has not been certainly settled in Switzerland. Many cases can be at once recognized as old hernias. In a **recent hernia** due to accident the following relations will be present: The hernia is never larger than a hen's egg; it will be interstitial, or at least will only project a little from the external ring; it will not return spontaneously on becoming recumbent, and can only be reduced by taxis; if once reduced, it rarely returns on standing, unless the patient coughs or strains; there is no hernia on the opposite side; the ring just admits the point of the index-finger; a double hernia is rarely produced simultaneously on both sides by an accident; it is rare that a single hernia is produced by accident when a hernia exists on the other side; an old man who has worked hard for years rarely gets a hernia from accident. In Switzerland the courts affirm that a hernia which can be retained by a truss takes 10% off of earning-power; one which prevents heavy work, although a truss is worn, 15%; one which interferes more, 20%. Compensation is lessened if it can be shown there was a congenital sac (which we are rarely able to affirm), or if there is the hernial sac with a wide base described by Kocher. In Switzerland 92% of claims are adjudged fraudulent by the courts. Employers are only willing to hire men who are shown by medical examination to be free from hernia and hernial predisposition.

J. E. Briscoe[3] reports a successful operation for **strangulated inguinal hernia** in an infant 21 days old. The bowel was tightly invested by the peritoneal tube throughout the entire inguinal canal. This sac appeared to terminate abruptly at the inner ring, and this causes the physical signs to resemble those of inflamed hydrocele.

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[1] Progrès méd., Feb. 4, 1899.
[2] Correspondenz-Bl. f. schw. Aerzte, Dec. 1, 1898.
[3] Lancet, Sept. 10, 1898.

W. C. Braisted,[1] U. S. N., gives a service view of **inguinal hernia.** He says, from this point of view, the following conditions justify operation: Men in good physical condition otherwise, who are incapacitated for duty by the hernia; men up to 40 years of age who have well-developed muscles, whether they are incapacitated for duty or not; men in whom a great strain has forced down a hernia, the sound ring being damaged purely by the strain; men who are irritated by trusses or in whom trusses are dangerous; men who in other respects are fit for enlistment. If recurrence has not taken place in from 4 to 6 years, enlistment is justifiable. In any case in which strangulation occurs or in which the patient is in danger of strangulation; in which recurring pain shows the tendency to hernia, and in which the intestine is repeatedly slightly engaged in the ring, operation should be done.

S. Catellani[2] reports a case of left-sided **femoral hernia** in a woman, in which, although there was no visceral transposition, the sac contained small intestine, cecum, appendix, ascending colon, and transverse colon. He reports also a case of lateral inguinal hernia. Such a case is usually wrongly spoken of as Littré's hernia (Littré's hernia is a diverticular hernia). The patient was a woman, aged 39. She had a hernia and intermittent symptoms of strangulation. One month before the hernia appeared an abscess had been opened in this region. A diagnosis was made of direct inguinal hernia. While introducing the finger into what was thought to be the sac, it was found to be the lumen of the gut. On incising the external oblique aponeurosis, it was seen that a knuckle of bowel adhered to the abdominal wall opposite the external ring. The intestine was resected and a radical cure made by Bassini's method. How can we account for the absence of a sac? We know that in congenital inguinal hernia there may be no sac, in which the sheath, being open, takes the place of a sac. It may be missing or partially missing in cecal hernia. It may be missing in hernias which pass across scars, the peritoneum having been separated by the contents of the hernia. The probable reason in this case is the scar which followed the suppuration. In operating the surgeon should separate all of the adhesions around a supposed hernial sac before opening it. [An excellent consideration of partial enterocele was contributed by Russell S. Fowler.[3]]

Wm. T. Bull and Wm. B. Coley[4] set forth observations upon the operative treatment of hernia. Results were disappointing until Bassini's method was adopted and nonabsorbable sutures were abandoned. They report 400 cases of **hernia-operations upon children.** All but 23 cases have been traced. Of them, 342 were treated by Bassini's method; 142 were well over 2 years; 94 were well from 1 to 2 years; 12 are well over 5 years; 25, from 4 to 5 years; 28, from 3 to 4 years; 80, from 2 to 3 years; 94, from 1 to 2 years; making 236 well beyond 1 year and 142 beyond 2 years. In 2 cases which relapsed Czerny's operation was performed. Both cases have now been well for nearly 5 years after treatment by Bassini's method. The mortality is less than 1%. The chief dangers are pneumonia and wound-infection. Great care is taken to prevent infection. It is important to operate rapidly, for, as Mikulicz shows, hands sterile at the beginning of an operation later become infected. The best suture-material is kangaroo-tendon or chromicized gut, the former preferably. Non-absorbable buried sutures should not be used, as they are liable to form sinuses. Vessels are ligated and the skin-incision is closed with fine catgut. The dressing consists of pads of iodoform gauze and moist bichlorid gauze; a spica bandage is applied, and over this a plaster-of-Paris spica from the knee to the ribs. The plaster dressing gives rest and favors primary union, which was obtained in 95.5% of the cases. In not a case has atrophy of the testicle followed the operation. There were 48 operations for **inguinal hernia in girls.** The operation employed is practically the Bassini operation for the male, with cord-transplantation omitted. The round ligament is freed from the sac and dropped in its original place. The results of operation in femoral hernia are excellent. The authors ligate the sac high up and close the femoral canal by a purse-string suture. This suture is passed through Poupart's ligament, the pectineal fascia and muscle, the fascia lata over the femoral vessels, and again through Poupart's ligament. This operation is simpler and as successful as Bassini's operation for femoral hernia. Attempts at radical cure in umbilical and ventral hernias are disappointing. Relapse is apt to occur, but operation at least greatly improves the condition. In epigastric hernia and hernia following operations for appendicitis results have been good. The authors' observations on relapsed cases are of importance: "During the past 10 years at the hospital 360 cases of relapse, following various operations for inguinal or femoral hernia, have been observed. An analysis of these cases brings out the very important fact that the relapse occurred in the great majority of cases within a few months after operation. In 64.5% relapse occurred during the first 6 months; in 80%, during the first year, and in only 20% after the first year; only $8\frac{8}{9}$% relapsed during from 1 to 2 years. This enables us to say, in cases that have remained well beyond 1 year, that the chances of relapse are greatly diminished. These facts are in harmony with the time of relapse that has been noted in our own cases." [Of the cases that relapsed after 2 years, it may be noted that in 5 cases the period was between 10 and 22 years; in 7 cases between 5 and 10 years.] "A study of the cases as regards the age of the patients was made, with the following results: In 3 cases the age of the patient was 1 to 10 years; in 12 cases, 10 to 20 years; in 38 cases, 20 to 30 years; in 47 cases, 30 to 40 years; in 31 cases, 40 to 50 years; in 29 cases, 50 to 60 years; in 20 cases, 60 to 70 years; in 4 cases, 70 to 80 years. Thus it will be seen that in 71% of the cases of relapse the age of the patient was over 30 years, and in 29% under 30 years. The fact is of little significance unless we know the relative number of cases operated upon over and under 30 years. It should be stated that a distinction has been made in this analysis as to whether the operation was done for strangulated or for nonstrangulated hernia. In 100 out of the 360 cases of relapsed hernia the operation was done for strangulated, though the average period of relapse after operation was found to differ little in the strangulated and nonstrangulated. Thirty-one cases were femoral and 329 inguinal. Of the femoral, 19 were strangulated and 12 reducible." Of the 400 cases in children, the cecum and appendix were found in the sac in 19 cases. Seven cases of hernia were strangulated in children. The authors have operated on 14 cases of hernia with undescended testicle. An attempt has been made to draw the testicle into the scrotum and anchor it, but such an attempt has usually failed. The authors advise operation in the following conditions: (*a*) *Children.*—1. Children over 4 years of age, in which a truss has been given a fair trial without marked improvement, as evidenced by the rupture frequently coming down or by never being completely controlled. 2. Cases complicated by fluid in the hernial sac (reducible hydrocele), which renders it impossible to effect a cure by mechanical means. 3. Irreducible hernias (rare in children). 4. Femoral hernias in children which, though rare, cannot be cured by trusses. "We have seldom found it necessary to operate upon children under 4 years of age, and we believe the practice of some surgeons, of operating upon infants under 1 year, open to serious question. Umbilical hernias in infants and children should, with very rare exceptions, never be operated upon, for the reason that they are almost invariably cured before the age of puberty, either spontaneously or by mechanical support. Our own series of 400 cases treated by operation have been carefully selected from upward of 8000 cases of hernia in children." (*b*) *Adults.*—1. It may be stated in a general way that the younger the patient the more favorable the prognosis as regards radical cure. 2. Inasmuch as a cure by means of a truss is but rarely obtained after the age of maturity, the operation may be properly advised in all cases of young adults; the operation is attended with little risk in competent hands, and the prospect of a cure is extremely good. 3. All cases of irreducible omentum, if the hernia be not too large and the subject not too old, are best treated by operation. 4. All cases of femoral hernia in patients suitable for operation. *Contraindications.*—Operation should seldom be advised in patients over 60 years of age. Very large irreducible hernia, especially in stout persons, should not be operated upon. The risks are great, and the prospect of cure is very small. We have together operated upon 1051 cases since 1888. Of these, 522 were operated upon by Bull and 531 by Coley. Of Bull's cases, 96 were children under 14 years; while of Coley's, 365 were children under 14 years, and 166 were adults, or persons between 14 and 70 years of age. Of Bull's cases, 170 were operated upon by Bassini's method. Of Coley's cases, 448 were operated upon by Bassini's method. Of these, 137 were in adults or persons between the ages of 14 and 70 years, and 311 in children under 14 years. All of Coley's cases were operated upon between Aug., 1891, and Sept., 1898. Bull operated on 134 cases prior to 1890; and a comparison of these earlier results, in which the Czerny and Socin methods were employed, with the later cases operated upon chiefly by Bassini's method, is of interest, and will suffice to show the great superiority of the latter method. Of the 134 cases operated upon prior to 1890, only 49% healed by primary union; 40% relapsed within 2 years after operation, and most of these relapses occurred during the first year after operation. It should be noted that of the 134 cases, only 16 were in children under 14 years of age. Silk was used as suture-material in 12 cases; and in every case traced a sinus developed after a longer or shorter interval, remaining open until one or more sutures were finally discharged or removed. The silk was prepared by boiling in a 5% carbolic acid solution just before using it. The mortality of the early series (3 deaths) was considerably higher than that in the later cases. One death was caused by ligature of the omentum too close to its attachment to the bowel, 1 by hemorrhage, and 1 by peritonitis. Of 1051 cases, the total number, 921 were inguinal, 96 femoral, 19 umbilical, and 15 ventral: 100 of the cases were inguinal hernia in females; 461 were in children between 4 and 14 years of age; 590 over 14 years. *Methods of Operation.*—Bassini's method was employed in 618 cases, with 12 relapses. Of these cases, 371 were children under 14 years of age, with 3 relapses, or 0.75%; 247 adults over 14 years, with 9 relapses, or 3.7%. In the 80 cases in which the cord was not transplanted, but in which the other steps of the technic were the same as in Bassini's method, there were 4 relapses. *Wound-healing.*—Of 531 cases operated upon by Coley since 1891, 95.5% healed by primary union. Mortality of new series, operated upon since 1890, was 5 deaths in 917 cases, or 0.4%. One death was due to hemorrhage from large omental stump in an enormous femoral hernia; 1 was due to ether-pneumonia; 1 to acute peritonitis; a fourth to pneumonia, pericarditis, and suppuration of a wound in a very weakly child suffering from spinal disease; the fifth was in an irreducible cecal hernia in a child aged 20 months, and death was apparently due to shock. Only 3 of the deaths followed the use of Bassini's method, and 4 were in children and 3 in adults. *Final Results.*—Of the 917 cases operated upon since 1890, 295 were traced and found free from recurrence for periods varying from 2 to 7 years after operation; 486 cases were well upward of 1 year after operation. [We are of the opinion that the Bassini operation is in most cases the best method to employ for the radical cure of a hernia. In order to obtain success from this operation, certain points are to be carefully observed. Bull and Coley give a most satisfactory account of the operation in the *International Text-Book of Surgery*. After dividing the aponeurosis of the external oblique, dissect back one side of the aponeurosis nearly to the rectus muscle, and the other side to the shelf of Poupart's ligament. In an oblique hernia the cord is found posterior to the sac. The cord is separated from the sac and from its bed by the use of the fingers and thumb. A sac of ordinary size is transfixed by a suture, ligated, and cut off. If the sac is large, it is sutured, and excised below the sutures. In a congenital sac enough to cover the testicle is allowed to remain, and is sutured with catgut. Bull and Coley insist that neither the internal oblique nor any muscle beneath the aponeurosis should be cut. Kangaroo-tendon is the suture-material employed. The lower suture of closure includes the conjoined tendon. A single suture should always be placed above the cord. The incision in the aponeurosis is closed by a continuous suture of kangaroo-tendon, and the skin is sutured with fine gut. Bull and Coley[1] have collected 1000 cases, exclusive of strangulated hernia, with a mortality of 0.9%. These cases have been collected since 1886, and show a great improvement over Leisrink's statistics in 1882, in which the mortality was estimated at 11.6%.]

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[1] Med. Rec., Jan. 28, 1899.

[2] Ann. of Surg., Dec., 1898.

[3] Ibid., May, 1899.

[4] Ibid., Nov., 1898.

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[1] International Text-Book of Surgery, vol. ii., p. 451.

Buchanan[1] comments favorably upon Kocher's most recent method for the **radical cure of inguinal hernia.** He says that it is easily performed; that it makes no weakening bridge in the abdominal wall; that patients need only be confined to bed for 10 days; that no mortality has been reported; and that but 3% of the cases relapse. The operation is performed as follows: The incision is made parallel to Poupart's ligament and ¾ in. above it from over the external ring to midway between the internal ring and the anterior superior iliac spine. The sac is separated from the cord up to the external ring. It is opened and its contents dealt with in an appropriate manner. It is next separated from the cord within the inguinal canal. An opening ¼ in. in length is made through the abdominal wall at the upper angle of the wound. Through this opening a pair of dressing-forceps is carried into the internal abdominal ring, and through this ring into the peritoneal cavity. The forceps grasps the fundus of the hernial sac and draws it turned inside out through the opening, and at this point it is sutured and its base cut off. The inguinal canal is then closed by buried sutures. We must remember, however, that this operation cannot be carried out in a case of strangulated hernia when the constriction is above the external ring and the canal must be opened; and it cannot be carried out if an old hernia with a greatly enlarged ring and an adherent sac.

Charles Ball[2] discusses the **radical cure of hernia** by an improved method of torsion of the sac. In 1884 he described an operation for radical cure by **torsion of the sac.** Since that time he has performed 150 operations. Many of these cases have remained cured for over 10 years, but a considerable number of them relapsed. Two factors were chiefly responsible for the early failures: First, suppuration of the wound, healing taking place by granulation and a weak cicatrix being formed. Modern methods have rendered suppuration in these cases extremely rare. Second, leaving in the peritoneum, opposite the internal ring, a depression which the abdominal contents tended to dilate gradually into a second sac. Macewen's operation was devised to obviate this difficulty. In Dec., 1892, Kocher described a method in which he twisted the sac, brought it out through an incision in the aponeurosis of the external oblique, laid it down over the inguinal canal and ring, and sutured it there. This method directs the peritoneal depression upward against the abdominal wall, instead of leaving it opposite the internal ring. If the sac is thick and large the incision in the aponeurosis must be large, and so an element of weakness is produced in the abdominal wall. Ball came to the conclusion that all the advantages of Kocher's operation could be obtained more simply and without cutting the tendon by passing a suture in such a manner that when tightened it would draw up a loop of the twisted sac in the subperitoneal tissue behind the abdominal muscles and fix it there. He has followed this plan for 5 years and is entirely satisfied with it. He describes the operation as applied to a case of reducible inguinal hernia in the male. An incision 1 in. in length is made over the neck of the hernia; the sac is exposed and opened, and a finger is introduced to detect adherent omentum or any other important condition. The sac is separated; if the hernia is congenital, the sac must be divided circumferentially, leaving the lower portion, but peeling off the upper portion from the cord. The sac must be cleared up to the internal ring; it is caught in a pair of T-forceps and slowly twisted, the finger separating the peritoneum from around the internal ring while the twisting is being carried on. It must not be twisted too tightly; because if it is, necrosis of the sac may ensue. The finger is now carried up in the subperitoneal tissue for at least 1 in., and a curved needle threaded with stout silk is passed beside the finger in the subperitoneal space and then directed forward through the muscles and skin of the abdominal wall. The other end of the same piece of silk is passed the other side of the twisted sac and brought out through the abdominal wall. As these 2 ends are pulled upon a knuckle of the twisted sac is pulled up in the subperitoneal tissues at the back of the abdominal wall. The ends are tied together over a lead plate, but are not too tightly fixed because of the fear of necrosis. If the sac is of moderate size, it now lies in the inguinal canal; and, along with the spermatic cord, is pressed with the finger backward toward the abdominal cavity, while deep sutures are passed, which take hold of the lateral structures of the canal and also pick up the twisted sac as it lies on the cord. If the sac is a very large one, a portion of the fundus ought to be excised. The skin-wound is closed by a continuous suture. If the hernia is double, both sides can be operated on at one sitting; but we should separate both sacs before twisting either, because it is then easier to estimate the amount of torsion which will be needed. A varicocele can also be treated by excision at the time of this operation. If there is a partially descended testicle, it may be possible to suture the gland in the scrotum; but if it cannot be brought down, or if it is rudimentary, it had better be removed. If the surgeon is a believer in buried sutures, he can draw up the skin-wound so as to tie the retaining suture on the abdominal aponeurosis. The operations of Bassini and Halsted require a free division of the abdominal wall, which is undesirable, because any scar in this region is liable to stretch.

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[1] Phila. Med. Jour., June 25, 1898.

[2] Brit. Med. Jour., Nov. 12, 1898.

J. Coplin Stinson[1] describes his method for the **radical cure of inguinal hernia** and reports some cases. The method is as follows: "An incision is made parallel with and ½ in. above Poupart's ligament from the external ring to ½ in. above the upper angle of the dilated internal ring, dividing the skin, subcutaneous tissues, and the external oblique aponeurosis. The latter is lifted and freed from the structures beneath, till the outer border of the rectus and the shelving edges of Poupart's ligament are clearly seen. The sac is isolated, opened, and the contents cleared out, removing all altered omentum. All adhesions internally and externally are separated. Next, the sac, its neck, and, as high as possible, the peritoneum continuous with it are removed, and the cut edges of the serosa closed with continuous sutures. The rings and canal are cleared of all masses of fat, glands, and adhesions; and all such masses that bulge into the internal ring from the subperitoneal tissue are also removed. Any markedly varicose veins of the cord are excised high up within the internal ring. The dilated internal ring is sutured. Commencing at the upper angle, bring the inner and outer borders of the transversalis fascia accurately together with continuous sutures, leaving only sufficient room at the lower angle close to the pubic bone for the cord. The internal ring is reinforced and the canal closed by uniting with continuous sutures the internal oblique and the transversalis and their conjoined tendon to the shelving edge of Poupart's ligament, leaving only room enough next to the pubic bone for the cord. Suture the cut edges of the external oblique and the pillars of the external ring, which are made snugly to embrace the cord. Finally the cut edges of the skin are closed without drainage. Sterilized gauze is held firmly in place by long strips of adhesive plaster, then a layer of cotton and firm spica bandages." The author says that in both the Bassini and the Halsted operation the spermatic cord, through being displaced, is shortened and put on the stretch; and because of its new relations it is subjected to pressure, muscular contraction, and the liability of adhesion to surrounding structures. Thus the nerves and vessels of the cord are interfered with, and as a result there may be swelling or tenderness or inflammation of the cord, and swelling, inflammation, sloughing, hypertrophy, or atrophy of the testicle. The spermatic cord is so stretched that it is subject on one hand to the traction of the bladder, and on the other hand to the traction of the testicle; and probably the influence of this traction aided by gravitation will eventually bring the cord back to its normal position. The higher the internal ring is formed, the nearer the cord and ring are to the parietal peritoneum, intestine, and omentum, and thus relapse is favored. Disturbances of the bladder are apt to follow these operations. The neck of the sac ought not to be tied off. The ligature is apt to slip and a piece of omentum or bowel may be included. Ligation leaves a pouch in the peritoneum and causes a puckering of the serosa which favors adhesions between the parietal and visceral layers. A single layer of buried sutures is used, or two layers with the cord interposed are employed. The edges of the different layers are not brought accurately together; they overlap, become irregularly matted together and adherent to one another, and thus the scar is apt to be weak.

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[1] Phila. Med. Jour., Oct. 22, 1898.

Emory Lanphear[1] describes a **new operation for inguinal hernia.** A flap is formed and turned down to expose the hernial sac and the inguinal canal. The sac is isolated, opened, and its contents reduced. The opening in the abdomen is temporarily closed with a gauze pad and the cord and testicle are lifted out of their new positions and wrapped in iodoform gauze. Make from the hernial sac an artificial vaginal tunic; pass the testicle and cord into this, and suture in such manner that not too much pressure is made upon the cord; push into the abdominal cavity and anchor by catgut sutures; close the cut in the peritoneum, then the opening in the scrotum, and then suture by layers the abdominal wall to obliterate the inguinal canal. It is, of course, possible that the ultimate fate of the buried testicle is atrophy. This is not known, but is possible. An objection to this operation is that a suppurative orchitis or epididymitis would necessitate opening the abdomen; but such conditions are comparatively rare. Lanphear has had very gratifying results from this operation. [We would consider an ordinary reducible hernia a less objectionable condition than a testicle in the abdomen. There must be danger not only of inflammation and atrophy, but also of sarcoma. The remedy in many cases would be as bad as the disease, and in some cases would be worse.]

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[1] Am. Jour. Surg. and Gynec., No. 8, 1899.

A. M. Phelps[1] showed to the New York Academy of Medicine several cases of large **hernias** on which he had operated by introducing **silver wire** into the inguinal canal. He said that from 25 to 100 feet of silver wire in the inguinal canal may be inserted without causing disturbance. The inguinal canal becomes obliterated. It is not necessary subsequently to remove the wire. He had been of the opinion that relapse in hernia cases was owing to loss of substance in the abdominal walls and stretching of the cicatricial tissue. If the inguinal canal were laid open, a mass of wire inserted, the transversalis fascia fastened over it, and over that another mass of wire placed, the wire would remain without causing disturbance. Phelps said that relapses occurred from the Bassini operation, and he believed that operation would follow the course of all its predecessors. His relapses had been from the use of absorbable sutures. The wire used in his operation is a very fine silver wire that has been sterilized, immersed in carbolic acid, and passed through the flame of an alcohol lamp just before using. In 1 case he introduced 300 feet.

Arthur E. Barker[2] presents a study of 200 consecutive operations for the **radical cure of hernia.** He says there are 3 questions involved in an inquiry: 1. Is the operation called for? 2. Is the operation safe as regards life and as regards the contents of the scrotum? 3. Does it permanently cure the hernia? The first question scarcely needs an answer if the operation is limited to the young after infancy and to those who are prevented from following some calling by reason of the hernia. In many cases operation is refused by Barker because there is little special reason for its performance. The risk of these operations is very small. Out of 200 operations there were 3 deaths, and 1 of these was due to ether. The vast majority of these cases healed absolutely by first intention under 1 dressing. In 26 cases there was some discharge from the wound, varying from a slight, turbid ooze from the stitch-hole or an angle to suppuration; but even in these cases the discharge was very trifling, and the healing was the nearest possible thing to first intention. In many in which discharge appeared the cause was wetting of the dressings with urine, either directly from the urethra or from tilting of the urinal during use. If this accident happens the dressings must be at once removed. The urine from the urethra may not infect the wound; but the urine from a dirty urinal will invariably do so. In some of these cases the suppuration seemed to be due to the patient's general condition. In some cases there was influenza; in 1 ascites, and in 1 diabetes. In some cases the discharge was due to small exudations of blood and serum under the skin, which prevented the skin from uniting immediately. Even a perfectly aseptic stitch may give rise to serous effusions if it is tied too tightly round the fibrous structure to the inguinal rings. It may even cause necrosis, especially if the wound has been long exposed. He used silk in all his cases, and in only 21 of these cases had the sutures come out. He thinks that this excellent result is largely due to the great care taken in not tying the sutures too tightly, and so avoiding strangulation and aseptic necrosis. In only 2 of these cases was there harm done to the spermatic cord and testis. In 1 the vas deferens was suddenly snipped across, and in 1 it was broken across. In 1 case he designedly removed the testicle. The ages of the patients ranged from 3 months to over 70 years. In the inguinal series of cases the cecum was found in 3 right inguinal hernias, the sigmoid flexure in 3 left inguinal hernias, and the bladder in 1 left inguinal hernia. In 1 right inguinal rupture the sac passed directly through the fibers of the conjoined tendon and was entirely separate from the cord. In 1 femoral rupture the sac emerged between the anterior iliac spine and the femoral vessels. There were 2 interstitial hernias of the inguinal kind, the sac passing upward and outward between the external and the internal oblique. In 1 of these cases there was a second distinct sac. In 79 cases of inguinal hernia Barker performed his own method; in 57, Bassini's method; in 7, Kocher's operation; and in 2, Macewen's. In his later cases of umbilical and ventral hernias he has used buried silver sutures, because he believes silver wire gives a mechanical support not obtained by silk. In almost every other case he has used hard twisted Chinese silk boiled in 1 : 20 absolute phenol. It is extremely difficult to say how far these operations protect the patient from recurrence, because the patients are often hard to follow. But Barker says that he constantly hears of his patients from various parts of the world who are quite rid of the trouble, and that he very rarely hears of a recurrence. He regards Bassini's operation, when carefully carried out, the best that can be employed.

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[1] Med. Rec., Apr. 22, 1899.

[2] Brit. Med. Jour., Sept. 10, 1898.

W. McAdam Eccles[1] writes on **interstitial hernias** and their treatment. By the term interstitial we mean an inguinal hernia, a part or the whole of the sac of which lies in the planes of the abdominal wall. There are 3 varieties: 1. When the sac is between the external oblique and the internal oblique; 2. When it is between the external oblique and the superficial fascia; and 3. When the peritoneum is pouched in the extraperitoneal tissues, and the sac is therefore between the peritoneum and the transversalis fascia. The first is the most common form, and the second is the most rarely recognized. The causation of these hernias has been much speculated upon. Congenital inguinal hernia is common, and in the same infant is generally associated with a want of proper development, particularly with an arrest of the testis in the inguinal canal, within the abdomen, or just external to the external ring. In the male sex interstitial hernias are often accompanied by an abnormal position of the testicle, and it seems that the relation may be causative; and yet interstitial hernias are even more common in females than in males. Eccles asks: Are cases of interstitial hernia in women associated with a congenital herniation of the ovary? This has not been demonstrated so far. What is the common factor found in both cases? It will be found that, as a rule, there is a patent processus vaginalis or canal of Nuck. Given a male infant who has a fully descended and properly developed testicle, even if he has an open vaginal process, he is very unlikely to become the subject of an interstitial hernia; but in a male child, particularly one a few years old, who has an open vaginal process and a partially descended testicle, the open vaginal process allows the descent of viscera, the abnormally placed testicle prevents the passage of the same into the scrotum, and an interstitial hernia is apt to result. In female children in such cases there is usually an open canal of Nuck, and the external ring is less of a real opening than it is in the male. In the male the testicle blocks the way; in the female the narrow opening of the external ring blocks the way and the peritoneal pouch forms in the line of least resistance. There are 2 other possible causes of interstitial hernia: the first is the action of an ill-fitting truss, the pad lying over the superficial ring. This arrests the descent of an inguinal hernia at the external ring, but does not prevent its entrance into the canal; and a secondary pouch may be gradually formed within the canal. A second cause is reduction *en masse*. If this is produced by forcible taxis, so that the original sac is forced into the tissues constituting the abdominal wall, we shall have a traumatic interstitial hernia. Interstitial hernia is more common on the right side than on the left. The first variety of interstitial inguinal hernia is a ventral swelling, which is not, however, very apparent. In its more advanced stage the projection is a flattened oval tumor above and parallel to Poupart's ligament and extending upward and outward, as a rule; though occasionally directly upward or toward the umbilicus. If the patient assumes the horizontal position, the swelling disappears. If he is asked to cough, the viscera gradually lift apart the planes of the abdominal wall toward the anterior superior spine. This dissection is often slow. Sometimes a portion of the sac reaches into the scrotum or the labium, a distinct curve marking the limits between the two. The first form of hernia is generally completely reducible, but strangulation occasionally occurs. The second variety is a smooth swelling which is usually well marked. The projection looks more superficial and can be traced to the superficial ring, which is often much dilated. It has a tendency to pass toward the anterior superior iliac spine. The swelling is not so flattened, and there is no hardening of muscle over it, as in the first form. Usually there is a portion of sac in the scrotum. Occasionally the swelling may hang over the front of Poupart's ligament, simulating femoral hernia. The contents of the sac are usually reducible; but strangulation is more common than in the first form. This condition may be distinguished from femoral hernia by the fact that the bulk of the swelling is above Poupart's ligament and the base is in the same region. The third variety has no external or ventral swelling, and it is seldom recognized except as a result of operation or at necropsy. In most of these cases of properitoneal hernia there is also a sac in the scrotum or labium. The existence of this form of hernia may give rise to reduction *en masse*. An interstitial hernia is not easy to control by a truss, as the viscera are apt to ooze down into the sac in spite of the use of the instrument. If the swelling is but slight, a truss with the usual size pad may retain it; but we may have to use a truss which has a pad in the form of a flap extending upward and outward from the limits of an ordinary pad, the flap lying over the inguinal canal and covering also the area above it and external to it. In some cases of the second variety a rat-tail truss may be efficient, or a four-tongued truss. In many of these cases operation is advisable. This is especially true of young children who have arrested testis. If we operate on these cases, we expose the ventral portion of the sac and the region of the deep ring is laid bare; the peritoneal pouch is removed flush with the anterior parietal peritoneum, but the greater part of the adventitious sac is left *in situ*. It is dangerous to dissect up widely the planes of the abdominal wall. If the secondary sac is in front of the external oblique, the neck of the sac is still within the canal, and can be tied and cut through, while the portion which is external is left untouched. In dealing with an arrested testis, if the patient is a child, replace the organ in the subserous tissue. If the patient is an adult and the gland is small, remove it if we have the consent of the patient, knowing that the opposite testis is sound. There is not much danger in young male infants in trying to bring the testis into the scrotum, and there is no danger in returning the testis to the extraperitoneal tissue. In strangulated interstitial hernia taxis is to be particularly avoided. An operation should be undertaken, the constriction divided, the contents of the sac returned, and the neck of the sac obliterated. If taxis is used, reduction *en masse* may be easily effected; and when we operate we must thoroughly explore any secondary sac to make certain that no imprisoned bowel is undetected.

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[1] Lancet, Dec. 24, 1898.

DISEASES OF THE LIVER, GALL-BLADDER, SPLEEN, AND PANCREAS.

Robert Abbe[1] reported to the New York Surgical Society the case of a man who recovered after receiving a **perforating wound of the liver,** kidney, pleura, and diaphragm. He was injured by being impaled upon a wagon-shaft while riding a bicycle. The shaft penetrated the right arm, separating the biceps and vessels from the humerus and pinioned the arm to the side. It next passed into the chest, broke the tenth rib, tore through the diaphragm and liver, and almost separated the upper third of the kidney from the lower two-thirds. The patient was seriously shocked, and restoratives were given. Temporary dressings only were applied. In 7 hours he had reacted. The urine was very bloody. The patient was given ether, the tenth rib was resected, about a quart of clot was sponged out of the pleural sac, the wound in the diaphragm was enlarged to admit the hand; the torn liver bled freely and the wound in it was plugged temporarily with gauze. An incision was made below the ribs to reach the kidney. The patient's condition did not warrant nephrectomy. Extravasated blood in the peritoneal cavity around the kidney was sponged away. A tight iodoform packing was passed through the pleural wound down to the kidney. It was continued up through the liver, and between the liver and chest-wall through the diaphragm and out of the chest. A tamponade of sterile gauze was placed in the pleura up to the retracted lung. The lower wound was partially sutured. This patient was not out of danger for 1 month, but fully recovered.

Talma[2] advocates the surgical treatment of **hepatic cirrhosis,** the aim of the treatment being the establishment of a collateral circulation. In necropsies on cirrhosis patients he has observed veins in adhesions which had formed between the liver and abdominal wall, and it occurred to him, as a surgical possibility, that adhesion might be deliberately produced, and that the blood of the portal vein could thus be carried around the obstruction in the liver. Eiselsberg operated on a case in which the patient was dropsical and had been tapped 3 times. The liver was granular and the peritoneum thickened. The great omentum and gall-bladder were stitched to the abdominal wall; dropsy did not return, but the spleen remained enlarged. In 2 months the abdomen was again opened and the spleen was stitched to the belly-wall. The spleen diminished in size, and 2 years later the patient was apparently well. Talma says the operation should be performed when the symptoms are due to obstructed circulation, but not when there is diminished activity of the hepatic cells. [This operation was suggested by David Drummond and Rutherford Morison[1] in 1896, as a cure for the ascites of hepatic cirrhosis. They reported 2 cases. Morison[2] offers further evidence on this subject, reporting a cure of ascites due to cirrhosis by operation. Morison opens the abdomen above the umbilicus, drains above the pubes, dries the peritoneum, rubs with gauze the anterior surface of the liver, the outer surface of the spleen, the parietal peritoneum, and the exposed intestinal coils, and sutures the omentum widely to the parietal peritoneum of the anterior abdominal wall.]

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[1] Ann. of Surg., Apr., 1899.

[2] Berlin. klin. Woch., Sept. 19, 1898.

Palleron[3] reports a case of **echinococcus** of the right lobe of the liver. The cyst was excised, and the cut liver sutured with silk. The patient recovered. The author advises the passage of a preliminary suture through the liver in order to hold the organ against the abdominal wound.

Terrier and Auvray[4] make a study of **hepatic neoplasms,** and particularly of the indications for operation. It is rarely that operation is indicated. Most liver-tumors are secondary, and the existence of such tumors shows that the disease is generalized and operation is useless. This is their view as to **secondary cancer** and sarcoma. In most cases of primary cancer of the liver multiple growths are disseminated through the organ. The only hepatic tumors that can be successfully removed are solitary growths which are in accessible situations. It is not proper to attempt to remove a tumor deeply placed in the right or left lobe. A growth which has a pedicle is most readily separated. Removal of a tumor however placed is not justifiable if it is fixed by dense adhesions to adjacent viscera or to the abdominal wall. It is justifiable to remove a localized primary malignant tumor if it is in an accessible situation and is not adherent to surrounding structures. The prospect of cure in cancer is small, although in some instances the patient has been free for 3½ years. In a case of irremovable tumor a palliative operation may be indicated to relieve functional disturbance and prolong life (cholecystostomy). The authors have collected 40 cases of hepatic growths. In some cases resection was performed; in others palliation was sought for. In 2 cases cholecystostomy was performed in order to obviate the disturbances induced by pressure on the gall-ducts. In 18 cases the tumors were malignant, 9 were syphilitic, 3 were angiomatous, 3 were of unknown nature. In 6 cases death was caused by operation (shock, hemorrhage, sepsis).

A. W. Mayo Robson[5] writes upon **partial hepatectomy** for primary cancer of the liver. He has operated in 35 cases of **cancer** involving the **liver** or biliary passages. In only 3 cases was it proper to attempt to remove the disease; 1 of these patients died of the operation. The 2 who recovered died in a few months of recurrence. Of the 35 cases, 27 recovered from the operation, including cases of cholecystostomy, cholecystenterostomy, cholecystectomy with partial hepatectomy, and simple exploratory operations. In some few cases there was marked relief, with disappearance of jaundice and temporary gain in weight. In 2 patients complete recovery took place; 1 case was apparently **cancer of the common duct** with infective cholangitis, for which cholecystostomy was performed; the other was apparently **cancer of the gall-bladder,** and in this only an exploration was carried out. In both of these cases the tumor was probably inflammatory. Robson's conclusions are as follows: "1. Seeing that statistics from various countries and by many observers agree in showing the frequent association of gall-stones and primary cancer of the gall-bladder and liver, it is desirable that cases of cholelithiasis should be submitted to surgical treatment at an earlier stage than has hitherto been the custom. 2. In all cases of tumor of the gall-bladder, even if unaccompanied by symptoms, an operation should be advised, and the obstruction, usually a calculus, should be removed. 3. If these rules were followed, primary cancer of the gall-bladder and liver would probably be less frequent. 4. If early operation in cases of tumor of the gall-bladder were followed out, even if primary cancer had begun, it could be taken in an incipient stage, when a complete cure by partial hepatectomy might be reasonably hoped for. 5. An exploratory operation, even in a patient seriously ill with a localized tumor in the gall-bladder region, is worth advocating, though malignant disease be feared, in the hope that the disease may be inflammatory, and so capable of relief. 6. If there are secondary nodules in the liver, or if adjoining viscera are invaded, the operation would better be terminated as a simple exploratory one."

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[1] Brit. Med. Jour., Sept. 19, 1896.

[2] Lancet, May 27, 1899.

[3] Gaz. degli Ospedali, Aug. 7, 1898.

[4] Rev. de Chir., Aug. and Sept., 1898.

[5] Brit. Med. Jour., Oct. 29, 1898.

W. G. Spencer[1] reported to the Clinical Society of London 3 cases of **gumma of the liver** relieved by operation. The only cases suitable for operation are those in which there is a single gumma on the surface or at the edge, and in which the liver is not cirrhotic. In the first case the mass was anchored to the abdominal wound, the interior was scooped out, and the cavity was packed. The patient was placed on specific treatment and was cured. The second patient had enlargement of the liver, wasting, and ascites. She had been tapped repeatedly. When the abdomen was opened, it was found that the patient had a gumma on the free edge of the liver, and some cirrhosis. Removal was not attempted. The patient was placed on specific treatment and was greatly benefited. In the third case there was a large tumor of the liver about to ulcerate through the skin. The mass was incised and gummatous sloughs scraped out. The woman was placed on specific treatment and was cured. Clement Lucas reported the case of a woman who had an epigastric tumor, evidently springing from the liver. Exploration indicated that this was a gumma. She recovered under specific treatment. In another case Lucas opened the abdomen and found the whole surface of the liver cicatricial. The patient improved greatly under specific treatment. The president, Langton, reported a case in which he did not operate, and which was cured by specific treatment.

H. Lilienthal[2] reports the following case of tumor of the liver: A man, 44 years of age, was cachectic and suffered from diarrhea. There

[1] Lancet, Dec. 3, 1898.

[2] Med. Rec., Oct. 22, 1898.

was a hard, movable tumor above the umbilicus. The abdomen was opened, and the mass was found to be the left lobe of the liver containing a tumor. The portion to be resected was surrounded by a temporary suture of strong catgut. Traction was made upon the mass and the incision was begun. It was found that the traction drew the vessels out so that they could be ligated. A large piece of liver was removed without hemorrhage. A piece of rubber tissue was placed over the intestines and a piece of gauze over the stump of the liver, and they were not removed for several days. The patient recovered from the operation and improved notably, but later diarrhea returned. The tumor resembled a **periepithelioma,** a tumor sometimes found in the suprarenal bodies. A tumor of this nature in the suprarenal body, even when almost microscopic, may lead to the formation of a very large metastatic deposit in the liver.

Weller Van Hook,[1] while operating on a case of **choledocholithiasis,** injected air into the biliary passages to discover the situation of the stone and to enable him to pass a metal sound in the ducts. He says the method enables the operator to locate the stone, to determine the size and relations of the biliary passages, the relations of the stone, and the existence of fistulas and diverticulums. He now uses a special instrument which enables him to distend the ducts and to let out the air as he wishes.

Hans Laehr[2] publishes the results of 360 **operations on the gall-passages.** Of these, 307 operations were for gall-stones, of which 255 were in women. There were 42 deaths (11.7%), 30 of which were not really due to the operation; hence the operative mortality was 3.8%.

Mayo Robson[3] reports a series of cases of **choledochotomy,** including 3 cases of duodenocholedochotomy. He says that when we perform an operation upon the liver or the bile-ducts we should be prepared to do any one of a number of operations, as it is usually impossible to know what operation will be necessary until the parts have been thoroughly explored. Courvoisier has stated that gall-stones are found in the common duct in 4% of cases. From a surgical point of view Mayo Robson says that 20% is a more accurate estimate; and this is due to the fact that the surgeon only sees cases in which there are serious symptoms. Knowing the fact that 1 case in every 5 of gall-stones will probably need some operation on the common duct, we should carefully consider the means at our disposal. In some few cases the stone can be forced backward into the cystic duct and then extracted; but this can rarely be accomplished, because, as a rule, the gall-bladder and the cystic duct will be found contracted. In rare cases a small stone can be pressed into the duodenum. This maneuver is not generally recommended, because the stone may be pushed into a dilated diverticulum of Vater and be lost, and the whole operation be rendered useless. The simple and safe operation which is well worth considering is **cholecystotomy,** the obstruction being subsequently attacked by injections for the purpose of separating it or dissolving it. This operation is certain at least to give relief with the smallest possible amount of risk, and it is the one of choice if the patient is too ill to bear a very serious operation. On 30 occasions Robson has succeeded in performing **cholelithotrity;** that is, crushing the stone in the duct. This can be done when the stone is soft enough to yield to finger-pressure; and it is an especially useful procedure when the common duct is hard to reach, as in fat people, and also in cases in which it is important that the operation should not be unduly prolonged. It should only be employed if the concretion is soft, and it may be well to follow it by injecting some solvent fluid into the duct. Needling the stone through the wall of the duct is unsafe, as the injury to the duct-wall may lead to future trouble. The procedure is useless if the stone is soft. It is very uncertain if the stone is hard. If the patient is too ill to stand a prolonged operation, we may short-circuit the obstruction by the operation of **cholecystenterostomy.** The objection to this operation is that it does not remove the obstruction. In most cases of obstruction the gall-bladder is contracted and the operation cannot be performed. **Choledochoenterostomy** consists in attaching the enlarged cystic duct or common duct to the duodenum. This may be used in those rare cases in which the gall-bladder is shrunken but the duct is dilated. Attaching the enlarged duct to the surface and draining it is known as **choledochostomy.** The operation is apt to be followed by infection of the ducts and death. The author has done it once successfully. The preferable operation, if it can be carried out, is incision of the duct and removal of the obstruction; it is known as **choledochotomy.** A modification of this operation which is sometimes useful consists in incising the duodenum and reaching the duct in this way. It is called **duodenocholedochotomy,** and is employed when the stone is impacted far down in the duct. The surgeon must be able as he does the operation to decide on the particular procedure for which the necessities of the case call. The author then discusses in some detail the operation of choice; that is, choledochotomy, and its modification duodenocholedochotomy. The incision through the abdominal wall is obliquely along the right lobe of the liver. This gives more room than the vertical incision if we are going to operate on the common duct. If the vertical incision is used, it must be longer than the one employed for cholecystotomy. A sand-bag should always be under the loin, as this maneuver will bring the duct several inches nearer the surface. There should be 2 assistants: one holds the stomach and intestines out of the way by means of a flat sponge, a broad retractor, or his fingers, using his right hand to sponge bile which may flow from the cut duct. The other assistant retracts the right edge of the wound, the liver, and the margin of the right ribs. The surgeon separates adhesions, seizes the common duct by his finger and thumb in order to cause it to become prominent, makes an incision in the long axis of the duct over the stone, and squeezes out the stone or removes it with an instrument. He must be very careful to clear the ducts thoroughly, for any lack of care will result in leaving concretions behind.

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[1] Chicago Med. Recorder, Sept., 1898.
[2] Volkmann's klin. Vortr., Oct., 1898.
[3] Brit. Med. Jour., Nov. 5, 1898.

Fenger asserts that if we use a flexible metallic probe we can locate a stone by the click of contact, or by grating as the instrument passes by. Robson does not consider this a reliable test; and he says that a stone can be often missed when we use the metallic sound. Digital exploration should be carried out if possible. In cases in which the duct is not large enough to admit the finger, he uses the bent probe or a bent scoop. The hepatic duct and even its primary branches can be explored; and if stones exist in these situations, they can be removed through the cut in the common duct. Sutures are applied by means of a rectangular cleft-palate needle or an ordinary round intestinal needle. A needle-holder is not used. The deeper layer of catgut sutures bring together the muscular and fibrous coats. The superficial layer is of silk, and brings together the serous coat. We should drain for 24 hours, or even longer, by means of a tube and a piece of gauze, and should also thoroughly drain the gall-bladder as in an ordinary cholecystotomy. If the concretions are impacted in the duodenal end of the duct, the easiest way to reach them is by incising the duodenum. Robson has performed this operation 3 times, and all the patients recovered. This operation was devised by McBurney. We grasp the termination of the common duct, including the duodenum, by the left finger and thumb, incise the anterior wall of the duodenum, and find the opening of the common duct on the posterior wall. We may be able to reach the stone by incising the common duct from the papilla, or we must cut directly on to the stone through the posterior duodenal wall. As soon as the obstruction is removed bile flows freely, and it must be promptly wiped away, as it contains pyogenic organisms. Robson did not in any one of his 3 cases suture the incision in the posterior duodenal wall. The incision in the anterior wall of the duodenum is closed by a continuous catgut suture for the mucous membrane and a continuous silk suture for the peritoneum, and no drainage is required. In cases of obstruction of the common duct jaundice exists, and in jaundiced patients there is apt to be considerable hemorrhage during and after an operation. When we are going to operate on such a case, in order to lessen hemorrhage it is a good plan to administer for several days before operation 30-gr. doses of calcium chlorid 3 times a day; and after the operation it is wise to give a dram of calcium chlorid in a nutrient enema 3 times a day for 24 or 48 hours. In 1886 Kehr collected 84 cases of choledochotomy, with a mortality of 37.8%, although his own mortality in this operation was only 6.6%. Robson has operated directly for gall-stone in the common duct in 49 cases, with 3 deaths, a mortality of 6.1%. Only 17 of these cases were choledochotomies, and 2 of these 19 cases were fatal, a mortality of 11.7%. Robson thinks that eventually the mortality will be reduced to 5%; but even if the mortality is not so reduced the operation is justifiable, because practically every recovery is a saved life, and without operation any impaction in the common duct means prolonged suffering and eventually death.

Charles McBurney[1] discusses the removal of **biliary calculi** from the common duct by the duodenal route, and reports a successful case. In this case, when the abdomen was opened the liver was found to be enlarged and congested and the atrophied gall-bladder was adherent to the duodenum. Palpation of the gall-bladder did not discover calculi; the cystic duct seemed to be normal; the common duct seemed to be normal until its lower end was palpated through the anterior duodenal wall, and here a large, firm body could be felt. The adhesions were so dense and the mass was so low down and so far behind the duodenum, that it was not possible to examine it from the posterior aspect of the duodenum. An incision 1½ in. long was made in a vertical direction at the middle of the anterior wall of the descending portion of the duodenum. The orifice of the common duct was visible on the posterior wall, and a probe introduced through this orifice came in contact with the obstruction. The mouth of the duct was nicked with a scalpel, when the calculus could be seen. The finger was passed behind the descending portion of the duodenum, and the lower end of the common duct containing the calculus was pushed forward into the incision in the anterior wall of the gut. The cut orifice of the duct was pushed back from the calculus; the latter escaped into the intestine. A probe was introduced up the common duct, but no other calculus was found. Bile flowed freely into the intestine. The duodenal wound was closed by 3 rows of catgut sutures. The surface of the intestine and the surrounding region of the abdomen were washed with hot saline solution and the abdominal wound was sutured. No drain was kept in the belly. This patient recovered. McBurney says that this operation was devised 6 years ago, while he was operating on a patient. He has performed it on 6 different occasions, and in no instance has there been any trouble in the healing of the intestinal wound. One of these patients, who had always had an extremely irritable stomach, died after uncontrollable vomiting; but in this case there was no sepsis nor wound-infection. McBurney thinks that the operation has a legitimate place in surgery which has not been thoroughly appreciated. When a gall-stone lies in the upper two-thirds of the common duct, it can be readily approached through the wall of the duct; but in most cases the management of the wound in the wall of the duct is not simple. Although the wound may be left open and drained with comparative safety, yet a surgeon would much prefer to avoid drainage with its attending dangers. If the patient is thin and no adhesions exist, we can occasionally suture the common duct with comparative ease; but often suturing a wound in the common duct is very difficult, and if the walls of the duct have become much thinned, it may be impossible to suture them strongly. When a stone is lodged in the extreme lower part of the passage and cannot be manipulated higher up in the duct, its removal without opening the intestine is very difficult and dangerous. Under such circumstances we should remove it by the duodenal route. It is much easier, because of its adjacency to the surface, to suture the anterior duodenal wall than it is to suture the wall of the common duct. McBurney says that his experience would lead him to prefer this plan for the removal of a calculus situated at almost any point from the termination of the cystic duct to the point of entrance of the common duct into the duodenum. The orifice of the duct is very dilatable, and can be incised for at least ½ in. with perfect safety. The operation is quicker, is cleaner, and is safer than the one usually performed. It has the advantage that by the introduction of a probe we can examine the bile-ducts toward the liver, and also that, as the orifice of the duct has been greatly dilated, it is not likely that overlooked fragments or thickened bile will be retained and cause further obstruction.

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[1] Ann. of Surg., Oct., 1898.

T. Jonnesco[1] makes a report upon 23 cases of **splenectomy.** One of these operations was performed for **hydatid disease;** the others for malarial enlargement. One patient died from the operation and 7 from causes not connected with the operation. When the operation is performed for malarial spleen, it cures the malaria and the red blood-corpuscles rapidly increase in number. The author says that his results confirm the views of Laveran, that the spleen is not an organ which protects against malaria, but it is a receptacle and habitat of the malarial organism. He believes that the removal of the spleen in an individual suffering from malaria cures the malaria by removing the breeding-place of the organisms.

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[1] Gaz. des Hôpitaux, Oct. 27, 1898.

A. Pearce Gould[1] reported to the Clinical Society of London a case of **pancreatic calculi.** One of these calculi penetrated the bile-duct. The patient was 46 years of age and had had influenza a year previous. His health began to fail, and he had for a few days a severe pain in the region of the umbilicus, particularly noticed when walking up hill. Jaundice set in and persisted. The liver was notably enlarged; the gall-bladder was distended, but there was no ascites. The motions were clay-colored. Gould opened the abdomen, and withdrew by aspiration a half-pint of fluid from the gall-bladder. He detected a lump back of the small omentum, which was a stone in the dilated duct of Wirsung. This stone was removed, and other calculi were discovered and removed. This operation did not relieve the obstruction to the biliary flow. In about 10 days after the operation the patient was seized with agonizing pain in the right hypochondrium. Gould reopened the abdomen and felt a stone in the head of the pancreas, near the duodenum. He incised the pancreas from in front, removed the stone, and found that he was able to pass a probe through the duct into the duodenum. Soon after the operation bile was vomited, the stools became colored, and bile ceased to flow from the gall-bladder incision. Vomiting, however, persisted, and the patient died on the twelfth day after the second operation. The postmortem showed pus underneath the gall-bladder and behind the ascending colon. There was a hydatid cyst at the back of the liver and the pancreatic duct was dilated and ulcerated. At the same meeting of the Clinical Society, A. D. Fripp and J. H. Bryant reported a case of **acute hemorrhagic pancreatitis.** The patient was a man, 42 years of age: 2 days before admission into the hospital he had been seized with abdominal pain. On admission he was in a state of collapse, and the pain was located above the umbilicus. The abdomen was opened. No obstruction was discovered. There was considerable blood-stained peritoneal fluid, and the abdomen had a shotty feel. No necrotic areas were discovered, and at places the small intestine was markedly contracted. The patient died in 48 hours. Necropsy showed extensive fat-necrosis in the omentum, mesocolon, round the pancreas, and in the subperitoneal fat. Extensive hemorrhage was discovered in the fatty tissue round the pancreas and in the gastrosplenic omentum. The pancreas was twice its normal size, and dark purple in color and infiltrated with blood, and in the interlobular tissue of the organ were patches of fat-necrosis. There was some ecchymosis round the cardiac end of the stomach. The blood of the pancreas contained a few rod-shaped bacilli. Cultivations were taken from the center of the body of the pancreas, and a pure culture of the Bacillus coli communis resulted. In this case there was a primary acute interstitial inflammation associated with the presence of the Bacillus coli communis, and characterized by hemorrhage, secondary necrosis, and inflammation of the parenchyma. The probable channel of infection was by means of the blood-vessels.

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[1] Brit. Med. Jour., Dec. 17, 1898.

Morian[1] reports a case of **necrosis of the pancreas.** He had made a diagnosis of cholelithiasis and operated. The intestines had upon them small yellowish growths, which led him to think the disease must be tuberculous peritonitis. He found a distended gall-bladder, opened it, and removed many calculi. The patient was not relieved of the symptoms of sepsis by the operation. On the fourth day swelling was noticed below the ensiform cartilage, but a puncture did not discover any fluid. On the fifth day there escaped from the gall-bladder opening coffee-ground material mixed with milky fluid and air. This led to the idea that there was perforation of the gall-bladder. The patient died a month after the operation. The postmortem examination showed necrosis of the pancreas and a retroperitoneal abscess.

DISEASES OF THE RECTUM AND ANUS.

W. Dutton Akers[2] reports the case of a man who had a **pin in the rectum** for 30 years. In spite of constant discomfort throughout this period the rectum had never been examined, though he had taken advice from a number of practitioners. An examination at once showed the pin, which was easily removed.

Quénu[3] reports 8 cases of **wounds** of the peritoneal portion **of the rectum.** These 8 cases added to Weller Van Hook's 28 cases make 36 on which to found a study. Of this series, 9 recovered. Quénu's reported case and several other cases were produced by the hard nozzle of an irrigator. The usual symptoms which occur are pain, hemorrhage, and shock; but in some cases they are not present. If the rectum is carefully examined by means of a speculum, the wound can be discovered; and we know that the rectum is perforated if we are able to pass a probe through it and move the instrument freely about. Laparotomy must be performed instantly, not even waiting to remove the patient to a hospital. The bulk of the small intestine is lifted up toward the umbilicus by a pad and the remainder is eviscerated. In Quénu's case the perforation was discovered easily because there was a subperitoneal ecchymosis. Experiments on the cadaver show that the operation can be rendered much easier by passing a rubber bulb into the rectum and inflating it; thus distending and lifting the rectum. After closing the perforation the abdomen should be thoroughly washed out with hot artificial serum. Free drainage should be established. If the urine contains blood, the bladder must be carefully examined to see that it has not been perforated.

W. W. Keen[4] writes on the advantages of a permanent abdominal anus and of total closure of the sacral end of the rectum in operations for **cancer of the rectum.** He has performed Kraske's operation 17 times, with 3 deaths, a mortality of 17.07%. Of the 14 patients that recovered, 6 have passed beyond the 3 years' limit. Two of the men, in spite of the loss of the coccyx and part of the sacrum, ride bicycles without difficulty. As a result of this experience, Keen has reached definite conclusions as to the proper course to follow. It is evident that after the operation the bowel must continue to empty its contents, and there are only 3 ways in which this can be done: First, in certain rare cases the sphincter can be preserved and the lower end of the bowel sutured to the upper; that is, we can perform resection rather than amputation. Secondly, if the anus and the sphincter have been removed, we can suture the cecal end of the rectum at the end of the resected sacrum, pass it through the gluteal fibers, and make an **artificial sphincter,** or rotate it to make a supplementary sphincter. He has never tried bringing the ends of the rectum out through the fibers of the great gluteal muscle. He has tried both of the other methods and has not found them satisfactory. Rotation of the bowel has been followed by infection in the rectal folds and by unsatisfactory results in retaining feces. The sacral anus has never been satisfactory. The patient must all his lifetime, day and night, wear a pad. There are a constant escape of mucus and a want of fecal control; and in addition there has always been some prolapse of the bowel, occasionally to the extent of 6 in. The sacral anus has another danger; that is, infection of the wound. Keen, in his later operations, has always made a preliminary colostomy by Maydl's method. At the end of a week he has excised all of the protruding portion of the bowel, leaving a minute artificial anus. This enables the patient to empty the upper bowel completely and allows the surgeon to disinfect the lower bowel. An abdominal anus is much more under control and can be cleansed much better than a sacral anus, and one can wear a belt as tight as is necessary to prevent both protrusion of bowel and escape of feces. Most cases in which such an artificial anus is made have the bowel empty spontaneously once or twice a day, and it is only when there is diarrhea that there is no control over the evacuation. In his last 2 cases he has taken a further step which he thinks is a distinct improvement; that is, after amputating the rectum he has completely closed the sacral end just as one closes the end of the intestine before making a lateral anastomosis. If this closure succeeds, no fecal matter or infected mucus can reach the wound, and there is greater probability of obtaining primary union; hence the danger to life is lessened. Secondly, as the perineal wound is entirely closed, no escape of either mucus or feces occurs after recovery, and the patient is not obliged to wear a napkin. Thirdly, and for the same reason, prolapse is avoided.

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[1] Prag. med. Woch., No. 1, 1899.

[2] Lancet, Sept. 10, 1898.

[3] Rev. de Chir., Jan., 1899.

[4] Jour. Am. Med. Assoc., Aug. 13, 1898.

J. M. Mathews[1] considers the value of the radical operation for **cancer of the rectum.** He believes the time will come when the surgeons of this country will not operate by the Kraske method. He does not reject the operation because of its danger nor because it is a major operation, but for the graver reason that whenever it is determined that this method is necessary to permit of removal of the rectum, the time for a curative operation has passed. If the rectum is infected in its entirety by malignant disease, there must be infiltration of glands round it that cannot be removed in the operation, and hence operation is useless. In a recent case of true cancer of the rectum, which was very friable, Mathews curetted the entire growth from the wall of the bowel until he could see and feel entirely healthy tissue. He cannot say what the ultimate results of such curetting will be, though he is inclined to agree with those surgeons who advocate it, and thinks it possible that it may supersede to a greater extent the operation of extirpation of the rectum, and that the statistics may be quite as favorable as those obtained in operations for removal of the whole rectum. [The danger of excision is often overestimated, and has been greatly lessened in recent years. In Charles B. Kelsey's last 25 cases there was 1 death. In Hochenegg's 89 excisions by the sacral route there were 8 deaths, and only 5 of these were due to the operation. We believe many of Hochenegg's rules are wise; for instance, do not operate radically if the patient is very weak; if there are metastases; if the mass is firmly anchored in the pelvis; if glandular infection passes beyond reach of the finger; and if acute obstruction arises. We do not agree with him that radical operation is proper if there are adhesions to the vagina, uterus, prostate, or bladder.]

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[1] Medicine, Apr., 1899.

J. Coplin Stinson[1] reviews the several methods of **operation for hemorrhoids** and describes what he believes is the best method. He uses the method of immediate excision. An anesthetic is administered and the field of operation is disinfected. The patient is placed in the lithotomy-position on a firm pillow, the legs being held by a Clover crutch. The sphincters are stretched, and the rectum and anus are disinfected with sponges. External piles are first removed. The pile is grasped with forceps and drawn out to expose its base. Before excising note how much tissue must be allowed to remain to permit the edges of the gut to fall together. The pile is cut off with sharp scissors, the cut corresponding to the radiating folds. If there is hemorrhage, clamp the vessel; remove any other external hemorrhoids in the same manner. Finally, remove the forceps in the order in which they were applied. Internal piles are next removed. The pile is grasped with forceps and drawn down into view, exposing its base. The surgeon estimates the amount of tissue that should be left to permit the edges to fall together. He cuts off the pile, the incision being in the long axis of the bowel. If any vessel spurts, he catches it with forceps. If there is bleeding high up in the rectum, it can be easily located and the vessel clamped if we introduce a Sims speculum and draw down the cut edges of the mucous membrane with forceps. All other piles are removed in the same manner, taking off the forceps in the order in which they were applied. If any vessel begins to bleed after removal of the forceps, tie with catgut the cut edges and suture with fine continuous suture of catgut. Even if the cut surfaces are not sutured, they will heal rapidly. In cases in which there is prolapse of the entire pile-bearing area, the excess of mucous membrane is removed by making 3 snips with the scissors in the long axis of the bowel, each cut extending from the skin of the anus to the highest point of the prolapse within the bowel. These snips are equidistant from each other. This method enables us to preserve linear strips of mucous membrane, and thus a normal rectum and a normal mucocutaneous orifice. Bleeding is dealt with as described above. After the removal of hemorrhoids the parts are dried, covered with aristol, and a sterilized gauze pad, cotton, and a T-bandage applied. There is nothing special in the after-treatment. The bowels may move naturally. If they do not do so for several days, give a cathartic, and just before the bowels move administer an enema. The patient may be allowed up after the bowels move.

H. J. Schiff[2] suggests a new operation for **hemorrhoids.** The sphincter is stretched and a piece of iodoform gauze is passed into the bowel in order to plug it. If there is a circle of hemorrhoids, it is divided into quarters and 1 quarter is operated on a time; or 1 hemorrhoid may be operated on at a time. The hemorrhoid is grasped with a clamp and pulled upon. An elliptical incision is made round the mass. The mass is cut off from the cutaneous surface and the incision is carried inward and upward, the vessels being divided last. When the vessels come into view they are grasped with forceps. The entire mass is then separated from its connection with the bowel. The vessels are ligated and the mucous membrane and skin sutured. Never forget to leave mucous membrane between each mass, otherwise there will be nothing to suture. After the sutures have been tied, remove the plug of iodoform gauze. The author thinks that in this operation there is less danger of secondary hemorrhage than in the ligature or the cautery operation. There is very slight pain during convalescence, and the patient is able to attend to business in about 5 days.

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[1] N. Y. Med. Jour., Nov. 5, 1899.

[2] Med. Rec., Dec. 31, 1898.

W. Thelwall Thomas[1] describes an operation for **hemorrhoids.** He says that we must remember that in hemorrhoids the cause is generally local and that chronic constipation is the chief factor. **Constipation** acts by directly obstructing the venous return where the veins perforate the muscular wall of the gut. It is invariably necessary to examine the rectum in every case of hemorrhoids, for any disease of the walls of the rectum, syphilitic or malignant, can obstruct the veins. An examination will enable us to avoid the blunder of trying to treat hemorrhoids when there is more serious disease higher up. The following types of cases require operation: (1) When there is much thickening of the mucous membrane with ulceration and occasional hemorrhage; (2) when extrusion takes place during defecation, the mass being returned by manipulation; (3) when there is a prolapse of mucous membrane bearing piles. The methods which may be followed are: ligating the piles and allowing them to separate by sloughing; cauterizing, thus leaving areas of mucous membrane to granulate or ulcerate, for the eschar separates by ulceration; the injection of irritants; and painting with caustics. For several years the author has operated by a method designed to bring about healing by first intention and to prevent either reactionary or secondary hemorrhage, and the results have been highly satisfactory. It requires no special apparatus, and the only assistants necessary are a Clover crutch and an anesthetizer. The evening before the operation a purgative is administered. In the morning, after an evacuation the rectum is washed out with soap and water. The patient is anesthetized, placed in the lithotomy-position, and so held by a Clover crutch. The sphincter is dilated and the pile-area exposed. A large pile is seized by the artery-forceps and its base clamped, the clamp being applied in the long axis of the bowel. The bulk of the pile is cut away, leaving a small stump, and the treatment of this stump is the essential feature of the operation. A piece of catgut, not too fine, each end threaded on a domestic needle, is used for a suture. Commencing at the top end of the stump, 1 needle is passed through, and the catgut follows until there is half the length of the suture on each side with its needle attached. A reef-knot is tied on the stump, and the needle that is on the right side is brought over to

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[1] Brit. Med. Jour., Nov. 26, 1898.

the left and passed through the stump lower down and back again to the right. The needle that is on the left is taken over to the right and passed through the stump back to the left immediately adjoining the previous one. A reef-knot is again made, and so on to the end of the stump (Fig. 27). This method brings the cut edges of the mucous membrane tightly together, and it is superior to the simple continuous suture because each cross and knot make each segment independent of the rest. The clamp is slackened, and occasionally, though rarely, it will be necessary to tie a small vessel at the top end of the stump. All the internal piles are thus treated. External piles are not clamped, and are simply snipped off with scissors pointing up the bowel. If any vessel bleeds, it is ligated, and the cut edges of skin are sutured by a continuous or buttonhole-stitch of catgut. It is not well to remove too much skin, and the skin is never sutured in any other direction than that of the long axis of the bowel, else cicatrization might lead to anal contraction. When this operation is performed no raw surface is left to be irritated or to granulate, and there is no tissue which must be removed by sloughing. At the termination of the operation 2 suppositories are inserted, 1 containing 3 gr. of iodoform and 1 a $\frac{1}{2}$ gr. of morphin. A pad of cyanid gauze under a square of wood-wool tissue is laid over the parts and a T-bandage is applied. For 4 days the patient is kept on a low diet. Should any action of the bowels occur, a suppository of 3 gr. of iodoform is introduced afterward. On the fifth day, if there has been no bowel-movement, compound licorice-powder must be given. On no account must an enema be used, lest the nozzle of the instrument tear the immature union. After the bowels have moved the diet is increased. On the seventh day the patient is up. Subsequently the patient should regularly take a laxative every alternate night for some weeks, to overcome the tendency to constipation. It suits some patients better to take the aperient in the morning. For the class of cases in which there is a large prolapse of mucous membrane bearing piles Whitehead's operation should be performed. If this operation is carried out as recommended by its author, its results will be good. The common error made in performing it is the removal of the external sphincter entire or in part; and the operation is blamed for incontinence of feces when the operator ought to be blamed.

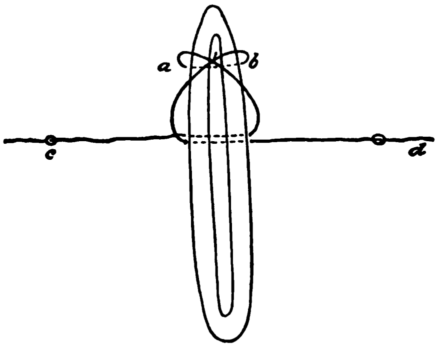

FIG. 27.—W. Thelwall Thomas's plan of operating upon hemorrhoids (Brit. Med. Jour., Nov. 26, 1898).

Henry T. Byford[1] has described a plastic operation for **hemorrhoids.** He clamps all the masses with forceps and determines how much tissue must be removed. He makes an incision across the sphincter muscle and includes some skin and mucous membrane. The making of this incision removes a portion of tissue and, hence, narrows the anal aperture. If an extensive dissection has to be made, the incision should be oblique, the defect being supplied by suturing the mucous membrane from above and the skin from below. Byford uses a mattress-suture of silkworm-gut. The needle is carried deeply into the tissues parallel with the cut edge and brought out on the same side of the wound. It is then carried into the tissues on the other side of the wound, parallel to the cut edge, and brought out on the same side opposite the point which it entered. The ends are then tied. Sutures thus applied do not pass through cut surfaces.

S. G. Gant[2] publishes a criticism of Whitehead's operation for **hemorrhoids.** He says that it should not be used for ordinary or even moderately bad cases. It is difficult and it is bloody. It keeps a patient in bed from 6 to 15 days longer than if the operation were done by the clamp and cautery or ligature. There is much tension, and postoperative pains are severe and prolonged. There is often infection, and this may terminate in deep abscess or fistula. If there is nonunion, there will be ulceration, possibly stricture and pruritus. The portion of bowel between the anus and the end of the retracted intestine loses its sensitiveness, and there is therefore an absence of normal secretion, and the nervous and mental state of some of those sufferers is pitiable. Many become chronic invalids or contract the opium-habit.

Thomas Charles Martin[3] suggests a new and simple method of **proctoscopy.** The only instrument employed is the fingers of the surgeon. The patient is anesthetized, is placed in the Sims position, and the assistant pulls the patient into the knee-chest position and holds him there, balancing him on his perpendicular right thigh. The surgeon closes his hands and points his index-fingers as shown in Fig. 28. The wrists must be crossed, the hands placed back to back, and the nails of the index-fingers one against the other. These fingers are lubricated and insinuated into the anus, and their ends are to pass beyond the protrusion of the levator ani muscles. The anus is then stretched in the direction of the ischial tuberosities, the surgeon parting his fingers as shown in Fig. 29. This manipulation leads to atmospheric inflation of the rectum, and the surgeon is able to command with his eye a view of this inflated rectum to the depth of 6 or 8 in., and in some instances he may even see part of the sigmoid. Under some conditions the rectum will not inflate; if there is a stricture of the rectum, a malignant growth, or any other disease that has caused the coats to become filled and fixed with exudate; if for some reason the intra-abdominal pressure is abnormally high, as it may be made by the bearing-down of the patient, by the existence of a great amount of intestinal flatus or ascites; if there is an impinged uterus, extra-rectal growth, or extensive infiltrated disease of the contiguous structures, rectal inflation by this or any other method based on the same principle is impossible. The surgeon will then be obliged to inspect the rectum while employing instrumental aids. In all ordinary cases this simple method will be satisfactory. The surgeon must be careful to divulse the anus toward the ischial tuberosities, and never in the anteroposterior direction. It is impossible by anteroposterior stretching to obtain the requisite dilatation.

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[1] Ann. of Surg., Mar., 1899.

[2] Va. Med. Semi-monthly, Apr. 14, 1899.

[3] Jour. Am. Med. Assoc., Aug. 27, 1898.

J. M. Mathews[1] writes on the treatment of **pruritus ani,** and describes a severe case which he cured by making a circular incision with a radius of about 3 in., going to the perineum in front and to the sacrum behind. He dissected the skin and tissue to the depth of $\frac{1}{4}$ in., cut down to the rectum, dissected the rectum loose, pulled it down 1 in., and cut it off. The bleeding vessels were twisted, but the mucous membrane was not sutured, as there was nothing to which to unite it. The wound healed by granulation and the patient was cured. Mathews says that many authors assert that pruritus is due to a discharge from the rectum, and is therefore but a symptom of rectal disease. He does not believe this. The itching due to rectal discharge is easily cured. It gets well itself if the cause of the trouble is cured. The vast majority of cases of pruritus he has seen have never been associated with any other rectal disease, and there has never been any discharge. He believes pruritis is due to irritation *per se* of the peripheral nerves; and the way to cure it is to destroy these peripheral nerves either by the actual cautery or dividing them by incision. In these severe cases we ought not to waste time in making local applications, but should operate. Of course, he does not refer to simple cases, but only to the very severe and persistent ones. Tuberculous patients who have pruritus should not be treated by incision, since much tissue is removed and the wound might refuse to heal.

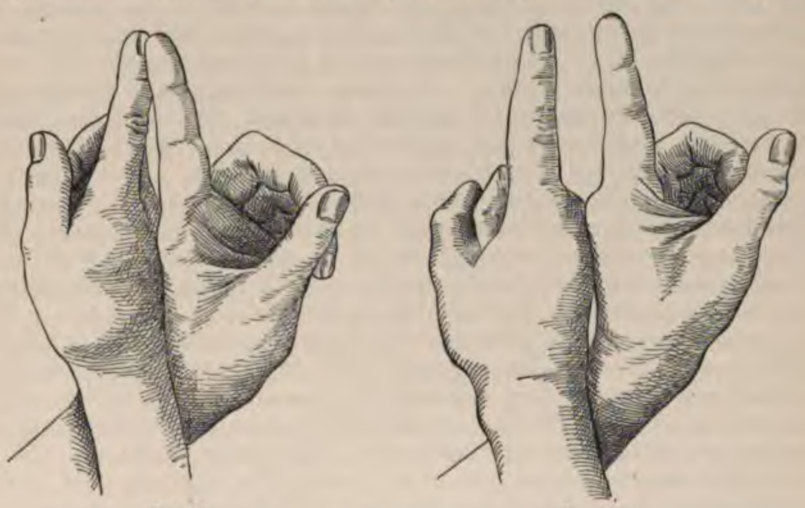

FIG. 28. FIG. 29.

FIGS. 28, 29.—A new and simple proctoscopy (Jour. Am. Med. Assoc., Aug. 27, 1898).

L. Conitzer[2] advocates the use of pure **ichthyol** in the treatment of **fissure of the anus.** After the patient has defecated the anus should be painted with undiluted ichthyol, which should be well rubbed in. This can be carried out morning and evening, and it will often effect a cure in a few days.

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[1] Med. Mirror, Oct., 1898.

[2] Münch. med. Woch., No. 3, 1899.

DISEASES OF THE RESPIRATORY ORGANS.

B. Farquhar Curtis[1] writes on **posterior thoracotomy** for foreign body in the right bronchus. He says that one of the most dangerous accidents that can happen to a person is the entrance of a foreign body into the bronchi through the glottis. There are cases on record in which the foreign body has emerged spontaneously by the same route, and there are many others in which it has been removed by a low thoracotomy. In some instances the patient has survived for years with a **foreign body impacted in the bronchi,** sometimes the health being little affected. In other cases chronic suppuration ensued. Weist claims that in untreated cases the mortality is 29%, and that when low thoracotomy is performed it is 25%. Preobraschensky says that the mortality of foreign body in the bronchus is 55%. Until very recently it was thought that the only possible means of surgical extraction was by a low tracheotomy; but in 1888 Nasiloff proposed to reach the obstruction by resecting ribs posteriorly. Curtis's case occurred in 1896. A boy, aged 11 years, was brought into the wards of the hospital. Three days before admission he had been playing with the seed-vessel of some plant. The object was ovoidal, measured ⅜ in. in its long diameter and about as much transversely; it had a smooth, firm shell, through which an ordinary pin had been pushed. He was holding this in his mouth, when a deep inspiration accidentally drew the object into the trachea, and in spite of violent coughing, emetics, inversion, and succussion it remained there. Examination showed there was beginning consolidation at the base of the right lung. On the fourth day after the accident chloroform was given and a low tracheotomy was performed. The foreign body was seen in the right bronchus, 2 in. beyond the bifurcation; but it could not be extracted, as the point of the pin was evidently directed upward and caught in the wall of the bronchus. The next day the patient was again anesthetized and turned upon his face, one shoulder resting upon a sandbag; a quadrangular flap was raised from the posterior surface of the chest. The base of this flap was outward at the scapula, and its free edge was nearer the spines of the fourth, fifth, and sixth dorsal vertebræ; this flap, containing the skin, the fascia, and the aponeurosis of the trapezius, was retracted outward. Some fibers of the rhomboid and serratus posticus were divided. These muscles were retracted outward and the splenius was retracted inward. The attachments of the longissimus dorsi were separated from the transverse processes, and all the deep muscles were separated from the ribs and retracted outward. Portions of the fourth, fifth, and sixth ribs, about 3 in. in length, were resected from the tuberosities outward subperiosteally. The layer composed of the periosteal and intercostal muscles was divided so as not to injure the pleura, and the intercostal arteries were caught. The pleura was separated from the posterior chest-wall and from the contents of the posterior mediastinum. The bronchus was easily reached, but it was difficult to expose sufficiently to permit an incision to be made in it, because it was crossed by the azygos vein, and the heaving movements of the lung were also very embarrassing. The pulse began to flag, and it was found necessary to pack the wound and suspend the operation. The next day the patient was again anesthetized, and as the pleura was somewhat adherent to the lung the latter was less troublesome. The bronchus was opened on the posterior wall without hemorrhage; but it was found impossible to recognize the foreign body when a pair of forceps was introduced into this opening. The foreign body was partly macerated, and was therefore similar in consistency to the bronchial forks, and it was further away from the bifurcation than at first. The foreign body could not now be found through the tracheal wound. It was finally detected by pressing upon the lung with the fingers, and it was determined to reach it by cutting through the lung. The detached parietal pleura was sutured to the lung, the ends of the sutures being left long and the lung held steady by them. An incision was made with the thermocautery-knife. The foreign body could be felt, but could not be grasped in the forceps. The condition of the patient was such that further operation was unjustifiable, so a drainage-tube was placed in the lung and the wound was packed. The next day the patient had pneumonia, and death ensued 48 hours after the last operation. The postmortem examination showed that there was neither pneumothorax nor pulmonary effusion. The foreign body lay in one of the secondary bronchi, and the pin had entirely penetrated the bronchial wall. The author concludes that the death in this case was not altogether due to the traumatism of the operation, but rather to the pneumonia set up by the foreign body. He says that if he has another case he will only make half a dozen efforts to reach the foreign body through a tracheotomy-wound, and he will then turn the patient over at once and perform the posterior operation, and he will hold the lung aside and restrain its motions with properly shaped wide retractors. The European operators open the mediastinum by making a longitudinal incision half-way between the scapula and the spinous processes, dividing the ribs in a linear manner or removing only an inch or so of bone, and widening the gap in the thorax by strong retractors. Curtis fashions his flap with the base toward the scapula, because the base is then thicker than the free edge, and it is a great advantage to have the flap attached to the scapula, as its base moves with that bone and free exposure of the wound can be obtained. It is better to secure the pleura to the lung and incise the lung, than it is to make prolonged attempts to reach the foreign body through the bronchi. The bronchi bifurcate; hence it is difficult to introduce forceps with any certainty in a given direction, and it is particularly difficult to get the forceps to enter the posterior branches. If we incise either a bronchus or the lung, the wound should always be drained and packed, because of the large amount of mucus which is sure to pour out of the respiratory passages. The external flap may be secured by external sutures after granulation has started in the deeper wound.

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[1] Ann. of Surg., Nov., 1898.

William H. Fischer[1] reports a case of **stab wound of the colon, diaphragm, and lung,** terminating in recovery. The patient was 33 years of age, and while drunk was stabbed behind the ribs on the left side. After the injury he walked 3 blocks home, and was not brought into the hospital until the next day, about 18 hours after the injury. Chloroform was administered. On the left side of the chest was a large fluctuating swelling, in the center of which was an incision 2 in. long which had been sutured. The sutures were removed and the blood-clots turned out. Excessive hemorrhage persisted, so that the original incision was enlarged in a direction parallel to the transverse colon. It was now seen that the knife had entered the abdominal cavity and had cut the splenic flexure, injuring the colon chiefly at its attached border between the layers of the mesocolon. From this point the knife had passed upward, cut the diaphragm, and penetrated for 2 in. into the lung. The incision in the lung was packed with gauze. Silk sutures were placed in the diaphragm from the abdominal aspect. A gauze drain was passed down to the cut bowel and the abdomen was closed. A fecal fistula followed for a time, but this patient was finally cured. Simple packing with gauze was practised in this case because the critical condition of the patient forbade a prolonged operation. The surgeon had intended, if the patient rallied, to reopen the abdomen and repair the injured bowel; but the patient was not fit for such a procedure until the third day, and then there were no signs of peritonitis and the expectant plan was followed. The fecal fistula in this case closed at the end of the third week.

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[1] Ann. of Surg., Oct., 1896.

Robert N. Downs[1] reported to the Philadelphia Academy of Surgery 2 interesting cases of **penetrating wounds of the thorax.** The first case was in a man, 39 years of age, who had received 3 stab wounds in the left side of the chest. When the finger was inserted, it was found that the pleura was opened and the lung injured. From the lower wound a piece of omentum protruded. The man was much shocked; there was only slight external oozing, but at each respiratory effort air rushed in and out of the openings. The abdomen was distended and tense and dull in the flanks. R. G. LeConte operated upon the case. The patient was given ether, and an incision was made in the median line above the umbilicus. A quantity of liquid and clotted blood escaped. A portion of bleeding omentum was ligated and excised, and the abdominal cavity was flushed; but blood continued to well up, and it was found that this blood came through a cut in the left portion of the diaphragm. At this time it was found necessary to transfuse 3 quarts of salt solution into the median basilic vein. The abdominal incision was closed, and an attempt was made to insert gauze packing into the lower chest-wound to control the bleeding; but free hemorrhage took place through the packing, and the patient at the same time expectorated frothy blood. The packing was removed, and a rubber drainage-tube was inserted in the upper wound and brought out at the lower wound, where it was secured. The atmospheric air rushed into the pleural cavity with each inspiration, and at the same time a large amount of blood escaped through the tube. No further hemoptysis occurred after 8 hours from this procedure. The drainage-tube was removed on the third day after operation, the oozing of the blood having almost ceased. This patient was cured. The second case reported by Downs was in a colored man, 35 years of age, who had been stabbed in the right side of the chest. The blade of the knife had divided the costal cartilage of the fourth rib on the right side, and had then passed into the pleural cavity.

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[1] Trans. Phil. Acad. Surg., meeting of Dec. 5, 1898; Ann. of Surg., Apr., 1899.

The patient was much collapsed. There was no hemoptysis and but little external oozing. Atmospheric air could be heard entering the chest with each respiratory effort. The blood could be seen welling up. The right side, especially posteriorly, was dull on percussion, with absent breath-sounds. Operation was not deemed justifiable, and the patient's antemortem statement was taken. He was stimulated and given opium, and the external wound was sutured with catgut. He was better 24 hours later, and external oozing had ceased. This patient completely recovered. In discussing these cases, LeConte remarked that in a penetrating wound of the lung the hemorrhage is generally profuse and often dangerous. The bleeding may be from the lung, from an intercostal or internal mammary artery, or from both. The intercostal artery is rarely injured unless the rib is also injured. Hemorrhage from the lung is very dark in color, probably because branches of the pulmonary artery are divided; but if the blood has collected in the pleura and been exposed to air for a time, because of pneumothorax, it will be lighter in color. Hemoptysis may or may not be present. If there is hemoptysis, the blood will be light in color, because it is aërated in its passage to the bronchi. In treating hemorrhage from the lung, some advise immediate closure of the external wound by suture or a plug of gauze; others, the insertion of a drainage-tube with free drainage. When the external wound is plugged or sutured, it is usual to strap the chest, apply cold, and give drugs like ergot or sulphuric acid. The theory of this treatment is that the blood will be dammed up in the pleural cavity and exert sufficient mechanical pressure on the lung to arrest the hemorrhage. It is known that many cases have recovered under this plan of treatment. LeConte asks the question, Does hemorrhage cease because of this intrapleural pressure? The answer to this question is negative. In the first place, the pressure in a lung equals about 30 mm. of mercury, and the pressure on expiration is a negative one, of from 6 to 10 mm. of mercury. In other words, the tendency of the elastic tissue of the lungs to contract still further at expiration is equivalent to from 6 to 10 mm. of mercury. By strapping the chest, we endeavor to keep the respiratory muscles from acting, and thus maintain the lung in position of expiration, a position in which intrapleural pressure is negative instead of positive. To be sure, the capacity of the chest is diminished, but it will still hold a quart or two of blood before much pressure is exerted on the lung. Secondly, when blood is poured into the pleura and air is excluded, there is very little tendency to clotting. It remains fluid for days or weeks, and the chances of a cut vessel closing by a clot are greatly lessened. Thirdly, as the mechanical pressure from the effused blood increases, and forces the lung back against its root, it must affect the circulation of the blood through the lung, engorge the right side of the heart, and raise the blood-pressure. Therefore, as mechanical pressure increases the blood-pressure also increases, and as the divided vessels remain open, the gain from outside pressure is in a measure overcome by increased pressure within the vessels. He says this is true only in a measure, for the loss of blood tends to decrease blood-pressure. He believes drugs to be entirely without value in such conditions, and ergot to be rather harmful than otherwise. Ice can have very little effect on the lung. When such a case recovers the pleura remains filled with blood. If the blood remains fluid, it may be easily aspirated and no harm ensue; but if it clots, a formidable operation is required to remove them; and if they are allowed to remain, the pleural cavity will be obliterated by adhesions. In a case in which a bronchus has been opened in addition to injury of the vessels of the lung, and in which the external wound has been closed, the hemorrhage will be controlled much more rapidly owing to pressure of the pneumothorax on the lung, and the blood will easily clot. The danger is that the mass of blood-clot will become infected through the open bronchus and a pyothorax will result. When we close the external wound the chances of general emphysema occurring are greatly increased. If a drainage-tube is inserted into the pleural cavity, the pleura at once fills with air; the respiratory muscles are prevented from acting on the lung; the lung contracts by the influence of its own elastic tissue as well as by the pressure exerted by the pneumothorax, and the presence of air favors clotting. This simple procedure may be sufficient to stop hemorrhage, and the drainage has cleared the pleura of blood and greatly reduced the danger of infection. It is said that another danger is that of a large and rapidly forming pneumothorax. Quénu of Paris has made some experiments to determine how great is the danger from a quickly formed pneumothorax. He says that when a healthy pleura is freely opened, there are symptoms of rapid heart-failure, labored breathing, an alarming condition, and possibly death. If the animal does not die, the dangerous symptoms disappear slowly. When death occurs, it is due to sudden engorgement of the right side of the heart, if the animal is strong and full-blooded, the sudden rise in blood-pressure overcoming the heart. LeConte does not think this objection applies to a man who has lost much blood; but if it does, the trouble can be controlled by venesection. He could conceive of it being an actual benefit, when the hemorrhage has been very great and the blood-pressure reduced to a very low point, as a quick and ready means of raising the pressure and tiding the case over until salt solution could be thrown into a vein. If we find drainage and the admission of air to the pleural sac do not control the hemorrhage, as a last resort one or more ribs must be resected, the lung grasped and held, and the bleeding vessels ligated or the wound sutured and packed.

Klett[1] takes as a foundation of his paper Burckhardt's experience, and writes on the **treatment of wounds of the thorax.** Burckhardt treated 86 stabs and 24 gunshot wounds of the chest. In the American Civil War, in 18 bayonet wounds there were 9 deaths. Prahl has collected 42 bayonet-wounds of the chest, with 22 deaths. From 1888 to 1896 the German army has records of 78 spear-wounds of the chest, 8 of which were penetrating. In 2 the heart was wounded, and these 2 were fatal; 2 more became chronic invalids because of ensuing pleurisy; the other 4 recovered. The mortality of gunshot wounds is held to be 27.5%. Burckhardt says that every stab-wound, whether it penetrates or not, should be enlarged under ether, layer by layer, until the pleura is reached, the puncture being thus converted into an incised wound and the surgeon being able to cleanse it thoroughly. Most of the wounds inflicted in peace are by instruments that are greatly infected, and this infection is likely to result in empyema. Exploration by the method of Burckhardt enables the surgeon to know whether the internal mammary artery or an intercostal artery has been injured, and to arrest the hemorrhage. Unless a very large vessel in the lung has been divided, the pleural wound can usually be left alone. Burckhardt maintains that gunshot wounds are less liable to become infected than stab wounds, and in treating a bullet-wound he simply asepticizes the orifices of entrance and of exit. Burckhardt has treated 86 stab wounds: 32 were of the penetrating variety, and 28 of these were converted into incised wounds and disinfected; 20 healed primarily, in 1 pericarditis arose, in 1 pleuritis, in 1 hemothorax, and in 5 empyema. None of the cases was fatal. In 4 cases primary disinfection was not carried out; 1 healed primarily, 1 developed empyema, 1 died from infection starting along the wound, and 1 had a severe attack of pleurisy, but recovered. Of the 24 gunshot wounds, 2 patients died as an immediate result of the grave injury; a third had fatty heart, and in this patient, though the wound healed completely, death ensued on the twenty-eighth day. Of the remaining 21 cases, 14 exhibited characteristic evidences of wound of the lung. None was fatal, but 6 of them developed pleurisy, and 1 of these also developed pericarditis. A careful investigation of the after-history of these patients showed that they became completely healthy and were able to work for a livelihood.

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[1] Deutsch. Zeit. f. Chir., Oct., 1898.

Carl Beck[1] reports a case of **echinococcus of the lungs** operated upon in New York City. The patient was an Austrian, 38 years old, and had been in America for 7 years. Beck performed **pneumotomy.** Chloroform was given. The fifth, sixth, and seventh ribs were resected. After a portion of the soft tissues with the costal pleura was removed the lung collapsed somewhat, but soon expanded again. Gauze was packed round the edges of the opening and an aspirating-needle was pushed into the exposed area, but nothing but blood could be withdrawn. Finally the stylet-tip of a Paquelin cautery was introduced into the center of an area, and at the depth of about 1 in. rusty-colored offensive pus escaped with a loud noise. The patient collapsed, and energetic efforts were necessary to rally him. The next day the cavity was washed, and drained by a rubber tube surrounded with iodoform gauze. This patient recovered. The diagnostic points in **echinococcus of the lungs** are as follows: 1. When symptoms of a chronic lung-disease become evident, and when pneumonia, circumscribed effusion, pyothorax, and infectious diseases, especially tuberculosis, can be excluded, we should think of the presence of echinococcus; especially when at a later period there are violent cough and expectoration of blood and offensive pus. 2. In those rare cases in which hooklets cannot be found in the expectoration, it should be considered that at the early stage of primary echinococcus the limits of dulness are irregular and sharply pronounced, depending upon the shape of the cyst; and that when an abscess-cavity forms the former dull area becomes tympanitic. At the beginning of a case there is no fever; but later on there is the characteristic temperature of retained pus. 3. In some cases there are an expansion of the wall of the thorax and dilatation of the veins. If the abscess-wall is near the chest-wall, there may be bulging of the intercostal spaces.

F. G. Penrose and T. H. Kellock[2] report a case of **hydatid cyst**

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[1] Jour. Am. Med. Assoc., Nov. 19, 1899.

[2] Lancet, Oct. 15, 1898.

of the lung treated in the Great Ormond Street Hospital in London. A portion of the sixth and seventh ribs in the posterior axillary line was resected and the pleura was opened. There were adhesions posteriorly and below the opening, but none above and in front of it. The visceral pleura was stitched to the parietal pleura. A trocar and cannula were introduced into the lung and clear fluid was withdrawn. The opening was enlarged, and it was found to lead into an adventitious cyst the size of an orange and full of hydatid fluid. This cyst and the true cyst collapsed and were removed. The edges of the opening were sutured to the parietes. The remainder of the chest-wound was closed by sutures and the cavity was packed with cyanid gauze. This patient was finally cured.

Galliard[1] writes upon **pyopneumothorax necessitus.** He defines this condition as a cold abscess of the parietal wall, which contains gas and complicates pneumothorax in certain cases. He reports a case in which a traumatism produced an **empyema** and **dry pericarditis,** and an abscess of this sort appeared. An abscess of the chest-wall which contains gas is usually of pulmonary origin, and we must carefully eliminate the possibility of actinomycosis of the lung, gangrene of the lung, and a tuberculous cavity. Such an abscess occurring in a pyopneumothorax is a very dangerous affair, and the surgeon must not wait for it to rupture, especially if, as is usually the case, the pus is fetid. If the pyopneumothorax is partial, we may incise the abscess and lay open more widely the fistula in the intercostal space. If the pyopneumothorax is complete, do not incise the abscess, but drain the pleura by an inferior pleurotomy and the abscess will then disappear.

Norman Porritt[2] strongly advocates resection of the ribs in the treatment of **tubercle of the apex.** He reports 3 cases: 1 patient died of the operation, 1 died of pneumonia a few days after the operation, and 1 improved notably and lived for 3 years. [Oscar H. Allis in 1891, in an address to the Pennsylvania State Medical Society, made a like suggestion.]

W. H. Cooke[3] reports a case of **double empyema** followed by recovery, an incision being made on each side, the incision on one side being made a week subsequent to the incision on the other side.

W. Menzies Hutton[4] furnishes a contribution to the study of **empyema.** He is not quite satisfied with the present accepted treatment in empyema. The results in children are fairly good; but in adults the disease often continues for months, many patients subsequently dying of phthisis or amyloid disease. Even in the cases reported as cured there is rarely complete restoration of function, incomplete distention on the affected side generally remaining. He thinks that our treatment must be less expectant and more active, in order to cause rapid healing by getting the lung quickly to expand. Aspiration as a method of treatment is suited to but few cases. It is well known that in children repeated tappings may cure; but in adults tappings rarely cure. Aspiration, however, is useful as a preliminary step two days before operation, when there is great dyspnea and the patient is breathing by his voluntary respiratory muscles. If in such a case we give an anesthetic, we arrest the action of these voluntary muscles, respiration ceases, and with one side full of pus it is almost impossible to restore respiration. Incision and drainage are the best method of treatment, and the opening should be made over the sixth rib in the axillary line. His reasons for this are: 1. It is the part of the lung which expands last. If the opening is at the angle of the scapula for dependent drainage, or anteriorly through Marshall's area; that is, through the space between the external oblique, serratus magnus, and the pectoral major, then the lung, if it expands, will block the opening and an undrained cavity will be left behind the scapula. 2. This site is comfortable to the patient, for as he lies on his back the tube is not pressed on. To understand drainage we must know how the lung expands. It does so by various expiratory acts; for example, coughing. When there is an opening in the chest-wall the respiratory acts are reversed. With inspiration the lung collapses still more; with expiration it expands. During inspiration the healthy lung expands and draws air in by the mouth, but draws it out of the collapsed lung. With expiration, especially coughing, the healthy lung drives air out, but drives it into the collapsed lung. This is seen after opening the pleural cavity, pus flowing out violently when the patient coughs, and the flow stopping on inspiration. Treatment aims not only to drain the pus, but to favor expansion of the lung. The ordinary treatment gives exit to the pus, but only accidentally aids the expansion of the lung in so far that when the dressings become soaked they will with inspiration be sucked against the opening, and to some extent prevent the entry of air into the pleural cavity. The author has succeeded in devising a method which allows the pus to escape and assists the lung to expand. In order to bring this about he uses a duck-bill valve. The apparatus consists of a large-sized drainage-tube with a flange of rubber 5 in. long by 4 in. broad, and there is a piece of tubing to which the valve is attached. The valve consists of a guttapercha nipple slit at the end, and is fixed by a piece of glass tubing to protect it from pressure. The tube with the valve is attached to the flange-tube by a right-angled piece of glass. After the chest is opened the flange-tube is cut just long enough to go through the chest-wall. A piece of guttapercha tissue is interposed between the skin and the flange. This when wet adheres to the flange and the skin, and thus prevents air getting in by the side of the tube. Some wool is applied over the flange, which is fixed to the chest by a domet bandage. The tube with the valve lies across the abdomen, the valve surrounded with wool and fixed by a binder. When the patient coughs air is expelled with the pus; and when inspiration occurs the lips of the valve close and prevent the ingress of air. No air or discharge should escape by the side of the flange. The author maintains that this method hastens materially the expansion of the lung; that it is comfortable, complete, and inexpensive; that by hastening the expansion of the lung it obviates in many cases the necessity of Estlander's operation, an operation that deprives the patient of the use of one lung. It is devoid of risk, and only aids nature, and after the tube has been in for a few hours the patient experiences much relief. Much time is saved in dressing cases, and there is less fatigue to the patient, as it is not necessary that he should move. It is impossible to say in chronic cases after what time the lung ceases to expand. A rough guide is to know if air is expelled through the sinus in the chest-wall when the patient coughs; if it is, more or less expansion can still take place. The author has seen expansion occur in a case that had lasted 8 months.

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[1] Sem. méd., Feb. 8, 1899.

[2] Lancet, Nov. 19, 1898.

[3] Ibid., Oct. 1, 1898.

[4] Brit. Med. Jour., Oct. 29, 1898.

DISEASES OF THE VASCULAR SYSTEM.

Lancereaux and Paulesco[1] report 3 cases of **aneurysm** which were treated successfully by the subcutaneous injection of a **gelatin solution;** 2 involved the arch of the aorta; 1, the subclavian artery. At the same meeting of the Academy of Medicine were reported 2 cases treated by the same method, 1 of which was successful. In the debate on the subject, Laborde said that we must be careful in the use of this agent; he believed it should be injected either into the sac of the aneurysm or round about it.

E. S. Corson[2] reports a case of **thoracic aneurysm** treated by the introduction of **silver wire and electricity.** He concludes from his experience with this case that when silver wire is introduced into the sac of an aneurysm and a current of electricity is passed blood quickly coagulates, and that dyspnea and cough are relieved for a time after this treatment. The method produces very little shock and very slight hemorrhage. In Corson's case a constriction which existed in the sac prevented a very satisfactory entry of the wire, so only the upper part of the contents of the sac were acted upon and the result was not complete.

At a meeting of the Clinical Society of London, Langton[3] reported a case of **aneurysm of the abdominal aorta** treated successfully by the introduction of **silver wire.** There was a pulsating tumor in the epigastrium, which was movable laterally but not vertically, and there was a loud systolic murmur. The swelling was increasing very rapidly in size and there was severe pain. An exploratory laparotomy disclosed the existence of an aneurysm of the upper part of the abdominal aorta. A trocar was pushed into the sac, and when it was withdrawn from the cannula but little blood flowed out. Five feet of silver wire were passed into the sac and the puncture was fastened with a silk ligature. A month after the operation examination showed that consolidation was taking place; but the manipulation at this time brought on vomiting and collapse, which, however, yielded to treatment. The tumor eventually became a hard mass in the middle line, much shrunken and without thrill or bruit.

F. D. Tait[4] reports a case of **aortic aneurysm** which was treated by the Moore-Loreta operation. An aspirating-needle was introduced in the left intercostal region, just inside the mammary line. Blood flowed from the needle until it was withdrawn. Twelve feet of No. 28 **silver wire** were introduced into the sac of the aneurysm. No oozing was noted from the puncture after the completion of the operation. Immediately after the operation the pain was lessened and the breathing was much easier. The thrill persisted. About 2 weeks after the operation an acute mania developed, which lasted 4 days. The patient lived 297 days after the operation, and died of renal insufficiency. The post-mortem examination showed that the aneurysm involved the ascending aorta and a part of the transverse arch of the aorta. On each side of the aneurysm, filling about one-third of the sac, were 2 very old and hard clots. The bulk of the silver wire was in the center of the lumen of the aorta, and upon it were some small recent clots. Portions of the wire were found within a centimeter of the aortic valves. The author maintains that the relief which appeared to follow this operation was really due to the use of morphin, and he thinks this plan of treatment by the introduction of silver wire is dangerous and unscientific and will be abandoned.

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[1] Gaz. des Hôpitaux, Oct. 13, 1898.

[2] Phila. Med. Jour., Mar. 4, 1899.

[3] Lancet, Apr. 1, 1899.

[4] Pacific Rec. of M. and S., Sept., 1898.

D. D. Stewart[1] presents a further account of the treatment of **aneurysm** by the use of **galvanism through introduced coiled wire,** and reports some cases. He says the method was originally proposed and employed by Corradi. The original method was faulty in vital particulars. In several of the early cases the wire was not previously drawn so as to form coils in the sac. It was often of improper caliber or of unsuitable material. In several cases an enormously excessive amount was introduced; for instance, in one case 100 feet of catgut had been first introduced, and afterward 150 feet of wire. This method of operation has been erroneously called the Loreta-Barwell operation. Loreta introduced wire into an abdominal aneurysm which was first exposed by celiotomy, but he did not use galvanism. Moore, in 1864, introduced wire into an aneurysm; and Corradi first combined the method with that of electricity. In Stewart's first case the outlook seemed hopeless, and yet remarkable benefit ensued. Prompt clot-formation took place, and there was notable relief from pain after operation. His second case has also been reported. There was a large aneurysm of the innominate artery, and consolidation was brought about by this method. In this case, after a half-hour's passage of the current, the 2 needles remained firmly perpendicular when not supported externally, and this was coincident with visible diminution in pulsation and with a sense of density imparted to the finger. This patient was a syphilitic, who had pronounced aortic and mitral disease, general endarteritis, and kidney-trouble. He lived for 3½ years, and finally died from an ailment unconnected with an aneurysm; the postmortem showed that the sac-cavity was completely obliterated by organized coagula. Stewart then examines and comments on 5 cases, 2 of which were his own; the remaining 3 were under the charge respectively of E. P. Hershey, W. H. Noble, and H. A. Hare. Stewart's fourth case, here published for the first time, was a large aneurysm of the thoracic aorta; the sac was of enormous size; the patient lived 8½ months after operation, and was greatly improved by the procedure. Postmortem examination was not permitted. Case 2 is of interest. It was an abdominal aneurysm; in July, 1897, William H. Noble performed a laparotomy, and he and Stewart introduced 9 feet of spirally wound fine gold wire through a cannula into the aneurysm, and applied by way of the anode a current of 65 ma. for 57 minutes. The patient improved at once and progressively. After the operation no morphin was required. He had had to take a great deal before because of the pain. After a few months the man presented no symptoms of aneurysm and resumed his occupation. The man died less than a year afterward of acute dysentery, which was not associated with any symptom of aneurysm. He died in Florida, and no necropsy could be obtained. Stewart looks upon this method of treatment with the utmost favor. In experienced hands it is devoid of danger, and promises benefit if not absolute cure. The errors which have been made by some operators lay in the employment of faulty technic. In Moore's case a great excess of wire was used, and death occurred from sepsis. In many other cases, although the operation was successful, such an excessive amount of wire was used that it could not but interfere with the ultimate result desired. The new method may be said to consist in introducing into the sac, under the strictest antiseptic precautions, a fine coiled wire, previously so drawn that it may be passed easily through an insulated needle, and after it has been introduced will coil in a spiral form. With such wire a moderate amount will occupy the entire caliber of the sac unless the sac be unusually large or be already filled with clot. The wire must not be too great in amount, too large in caliber, too bulky, nor too highly drawn. It should not be so brittle as steel nor hard like drawn iron, lest it fracture during the contraction of the sac and perforate the aneurysm. Nor should it be of soft iron, because this will decompose and form insoluble salts under the influence of the current and produce danger of embolism. The best material to use is silver, gold, or platinum wire. We must decide upon the amount of wire to be used with great accuracy, basing our estimate upon the size of the aneurysmal sac. For a globular sac of 3 in. diameter from 3 to 5 feet are enough; for a sac 4 to 5 in. we should use from 8 to 10 feet. The active electrode must always be the anode or positive pole. This is connected with the wire, and the negative pole is joined to a clay platter or an absorbent-cotton pad which is placed upon the abdomen or the back. The current is slowly brought into the circuit and its strength accurately noted. It is increased gradually for a few moments until the requisite strength is reached. Toward the end of the session the strength is gradually diminished to zero. When the wire is removed from the battery the needle is withdrawn by rotation and counterpressure. The released external half of the wire is gently pulled upon and cut off close to the skin, and the cut end is pushed beneath the surface. The current-strength must be high—that is, from 40 to 80 ma.—and the session must be from three-quarters of an hour to an hour and a half. Another effect produced by this method aiding clot-formation is through portions of the coils of wire, which in small coils lie in direct contact with the sac-wall; an electrolytic effect is produced on the endothelial lining of the sac, and when the lining has been so acted upon it favors the deposition of leukocytes.

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[1] Phila. Med. Jour., Nov. 12, 1898.

B. M. Ricketts,[1] in discussing the treatment of **aneurysm** of the arch of the aorta, reported a case in which he had successfully performed **distal ligation.** He says there are only 2 methods of treatment at the present time to be considered: The first is ligation of the right subclavian and the common carotid; and the second is the introduction of wire into the sac, with or without the use of galvanism. All cases should first be treated thoroughly with iodids, and then either one of these methods applied. Ligation is safer and gives a greater chance of benefit. Ligation of the subclavian and the common carotid is safer than is ligation of the innominate, and should be preferred to the latter procedure. Of course, if there is extreme atheroma of these vessels, ligation is contraindicated. In such a case we might use needles or wire with or without galvanism.

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[1] Jour. Am. Med. Assoc., Aug. 13, 1898.

Moynihan[1] reports a case of aneurysm of the third portion of the right subclavian artery, which he treated by excision of the sac. Another aneurysm 59 days after the operation developed 1 in. to the inside of the ligature, upon the second part of the subclavian. The innominate artery was ligated, but the patient died an hour afterward from shock and hemorrhage.

Richard Slocock[2] reports a cure of a left carotid **aneurysm** by manipulation. The patient declined operation. Five months later, during an examination, Bond pressed firmly over the sac and artery. When seen 2 days later the beating had ceased, and it never returned. The tumor gradually diminished, and 2 months after the **manipulation** the aneurysm seemed to be completely cured. It will be remembered that in 1862 Sir William Fergusson suggested manipulation as a method of treatment, and in this case it is probable that a small clot was detached and became impacted in the mouth of the sac. Such a termination must, however, be very rare, and no one would deliberately apply it in the treatment of an aneurysm at the root of the neck, for fear of the production of embolism of a cerebral artery. Two cases have been reported in which examination for diagnostic purposes of carotid aneurysm caused paralysis and death. In a large proportion of the cases of aneurysm of the carotids; that is, in 87.25%, the disease involves the common carotid at or near the bifurcation.

T. E. Schumpert[3] reports a case in which he successfully ligated the first part of the left subclavian artery for aneurysm of the third part. This is an operation which surgeons have almost universally condemned. Schumpert's patient made a most satisfactory recovery.

Raymond Johnson[4] reports a case of **aneurysm of the femoral artery** in a child, in which digital compression was applied to the iliac artery through an abdominal incision. In this case 2 methods of treatment were considered: 1, the ligation of the iliac artery above the aneurysm; 2, opening the sac and ligation of the femoral artery above and below the opening into the sac. The second method was selected because the aneurysm was diffused. It was decided that the best way to control the circulation would be to open the abdomen and make digital compression on the common iliac artery, the method which was devised by McBurney of New York, and practised by him in 3 amputations of the hip-joint. In this case a short vertical incision was made into the abdomen through the upper part of the right rectus muscle, and an assistant introduced his thumb and index-finger and compressed the iliac artery. The aneurysm was laid open by a vertical incision. Fluid blood and clot were turned out, and the removal of the clot was completed by the use of Volkmann's spoon. A ligature was passed round the femoral artery above and another one below the sac, and after tying the ligatures the vessel was divided below the upper and above the lower ligature. The abdominal incision was closed and sutured. The result of this operation was most satisfactory. The author says he would be disposed in future to adopt this method in controlling hemorrhage during the performance of hip-joint amputation, or in dealing with certain vascular tumors or aneurysms of the groin.

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[1] Ann. of Surg., July, 1898.

[2] Lancet, Nov. 26, 1898.

[3] Med. Rec., pp. 337–339, 1898.

[4] Quart. Med. Jour., Oct., 1898.

Delorme[1] discussed before the Société de Chirurgie of Paris the surgical treatment of **pericardial adhesions.** He suggested that it would be proper to divide these bands of fibrous tissue. The incision should be made at the level of the fifth costal cartilage, so that the parietal pericardium can be closely followed. A localized adhesion can be easily divided; but if the adhesions are very thick and very close together, the proper procedure is simply to divide any attachment which exists between the diaphragm and the pericardium, the other adhesions being left alone. The surgeon must be careful to avoid the phrenic nerve.

H. C. Wyman[2] reports the case of a man who had been badly injured by the bursting of a circular saw. A portion of the fifth costal cartilage and fifth rib on the left side had been torn away. There was an opening in the pleura and pericardium and the **apex of the heart protruded.** The openings in the pericardium and the pleura were sutured by a continuous catgut suture, and the man made an uninterrupted recovery.

Brentano[3] writes on the surgical treatment of **pericardial effusion.** He says that 3 methods of treatment have been suggested: First, tapping; second, incision; and, third, incision after rib-resection. Tapping is unsafe, as there is no certainly safe place where we can introduce the needle, and there is always danger of puncture of the heart or pleura. In those cases in which a pleural effusion has followed puncture, the pleura was probably wounded. Again, it is not possible completely to empty the pericardial sac by puncture, and the operation must be repeated. Simple incision is not a safe operation. There is danger of wounding the pleura and the internal mammary vessels. The proper procedure is to resect a portion of a rib or cartilage before opening the pericardial sac. General anesthesia is unnecessary. Resection of the fifth left costal cartilage gives enough exposure. After the pericardium is exposed a puncture is made to determine the character of the effusion. The pericardium is then opened, and in a purulent case the edges of the cut pericardium are sutured to the skin-edges. The pericardial sac should be washed out with warm sterile water in order to remove coagula and fibrin-masses; or, if the case be purulent, to remove infective material. Cases must not be operated upon in which there is old cardiac disease. Brentano says that in Körte's clinic 5 cases were operated upon. They all improved for a time, but only 1 recovered. Two of these cases were instances of **suppurative pericarditis** secondary to infective osteomyelitis. In 2 other cases the effusion was serofibrinous. Operation is justifiable in cases in which the life of the patient is threatened, and this is always the case when the fluid is purulent.

Henry Bentham Robinson[4] reports a case of **pericarditis** treated by resection of a cartilage, incision, and drainage. Bronchopneumonia occurred, and the patient died 3 days later. In this case an incision 1½ in. long was made over and parallel to the fifth left costal cartilage. The perichondrium was incised and separated as well as possible. One inch of the cartilage was removed. The edge of the left pleura was distinctly visible. The pericardial sac was incised just internal to the pleura;

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[1] Progrès méd., No. 46, 1898.

[2] Physician and Surgeon, Oct., 1898.

[3] Deutsch. med. Woch., Aug. 11, 1898.

[4] Brit. Med. Jour., Nov. 26, 1898.

10 oz. of fluid were evacuated. A gauze drain was inserted and the wound dressed; the cavity was not irrigated. Just before the pericardium was opened the child stopped breathing; but on the escape of the fluid there were 1 or 2 gasps, followed by immediate improvement.

Newton[1] reports a case in which **rupture of the aorta** was caused by a fall from a bicycle. The man lived for 90 minutes. The imprint of the bicycle-handle could be seen on the cutaneous surface, but the skin was not broken. The sixth costal cartilage had been fractured, and a portion of it had torn the right ventricle near the apex, but the pericardium was not ruptured. The author says that in 40 cases of traumatic rupture of the heart which are on record, in nearly every one there was existing disease of the heart, and but slight force had been necessary to produce the rupture.

G. Marion[2] reports the case of a man who **shot** himself **in the precordial region.** He was unconscious for a time, and then complained of violent pain in the epigastric region. The pulse was very rapid; the respirations were easy and regular. Hemorrhage was slight and there was no vomiting. The ball had entered the chest at the upper border of the third rib, 3 cm. to the left of the sternum. The epigastric region was tender and the muscles were rigid. The patient was somewhat cyanotic. It was thought that the ball had entered the abdomen, but an exploratory incision showed that the diaphragm was uninjured. The patient became worse, so that the cartilages of the fifth, sixth, and seventh ribs were resected. The pericardium was opened, and was found distended with fluid and clotted blood. When the clots were removed there was a burst of blood from the torn ventricle, and the patient almost instantly died. The ball had passed completely across the ventricle, emerging posteriorly. The opening was so large that a rapid suture would have been impossible. It is a curious fact that in this case the chief symptoms were abdominal and that there was no severe shock.

F. J. Shepherd[3] reports the case of a lunatic who took 2 darning-needles and tried to drive them into his heart by means of a file. He pushed them completely beneath the skin. The man suffered great pain. Two **punctures** were discovered between the fifth and sixth ribs **in the region of the apex of the heart,** and at every heart-beat the skin over 1 of these punctures was elevated. Shepherd cut down upon the needles, and had to pass through the intercostal muscles to reach them. He extracted them. One was fixed in the lung and 1 in the heart. The one that was in the heart was embedded in the left ventricle, but had not penetrated it. The patient recovered in a satisfactory manner.

G. Parlavecchio[4] reported a case of **successful suture of a punctured wound of the heart.** The man had been stabbed in the left fifth intercostal space, a little to the left side of the parasternal line. He walked a distance of over 200 yards to the hospital. Five hours later he was found to have hemopneumothorax of the left side. The area of cardiac dulness was notably increased and the heart-sounds over the apex were confused. The pulse was small, irregular, and intermittent. Eight hours after the injury chloroform was given and an incision was made in the fifth interspace. A portion of the fifth rib was resected; a large wound was found in the pericardium, and a V-shaped wound in the left ventricle of the heart. This latter wound was 1½ in. in length and discharged blood intermittently. Four silk sutures were deeply applied to it and the hemorrhage ceased. The pericardium and intercostal wound were sutured. The reason the patient lived for the 8 hours between the injury and the operation was that the wound was blocked by clot, which clot was displaced during the struggling caused by the administration of chloroform. The operation was performed on July 7, and the patient left the hospital perfectly well on August 14. This is the third recorded case of successful suture of the heart.

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[1] Med. Rec., Jan. 21, 1899.

[2] Presse méd., Mar. 29, 1899.

[3] Canad. Pract., Dec., 1898.

[4] Lancet, Sept. 17, 1898.

Giordano[1] considers the various methods for reaching a **wound in the heart.** He says that any method adopted must be capable of very rapid performance. The opening must give a good view of the injury and admit of manipulation, and the procedure should be such as to require but little extra assistance. The anterior and lateral surfaces of the ventricles and sinuses can be reached from the anterior wall of the chest. We can suture the ventricles after the section of a single rib, it not being necessary in such a case to resect any portion of the sternum. If we are dealing with the auricles, we must resect both the third and fourth ribs, make a quadrilateral opening, and reflect the ribs at their chondrosternal junctions. The posterior surface of the ventricle can be reached from the posterolateral surface of the thorax.

William H. Bennett[2] delivered an elaborate address on **varix,** its causes and its treatment, with special reference to thrombosis. Until comparatively recently the **origin of varicose veins** has been regarded as something of a mystery, but Bennett has come to positive conclusions in regard to it. Varicose veins may be divided into 4 classes: 1, those which are congenital; 2, those due to obstructed blood-current; 3, those known as traumatic, which are caused by strain without thrombosis; and 4, those which result from thrombosis. A large percentage of the cases met with are congenital. There are 2 varieties of **congenital varix:** (*a*) those connected with the subcutaneous veins only and (*b*) those having a direct and extensive communication with the deep veins. The second variety is the most important. As an example of the first variety may be mentioned the local varix often seen in the calf of the leg; and of the second kind, the collection of varicose veins about the inner side of the knee, which turns toward the middle of the popliteal region and ends in a large vessel which joins the deep vein directly by passing through the normal opening in the fossa over the popliteal space. There is a third variety of congenital varix, in which the whole venous apparatus of the limb is overdeveloped, with or without increase in size of the main artery. Such a condition, when it is very marked, may be termed diffuse nevus. Congenital cases are, as a rule, not noticed early in life, and are usually not found until about the period of puberty, when there is often a rapid increase in abnormity. In the production of such cases heredity, especially on the father's side, is a considerable factor. The most familiar examples of varix due to obstruction of the blood-current are cases resulting from the pressure of the gravid uterus or the pressure of tumors on veins. If the pressure is transient and not too absolute, the dilatation may entirely subside after the pressure has been removed; but if the pressure is sufficient to cause the vein-valves to give way, or if an aseptic thrombus forms immediately below the seat of pressure, permanent varicosity results. In speaking of the cases caused by strain, he says that the veins of persons who when young are subjected to abnormal strain tend to become varicose more than the veins of persons who are not subjected to abnormal strain. The immediate cause of the varicosity in such cases is the giving away of the vein-valves, usually the proximal pair; and these valves, it may happen, give way because they are imperfect anatomically. It is well known that thrombosis of a large venous trunk may cause varix. Strains and very similar injuries of the leg or ankle, followed by pain and acute tenderness down the middle of the calf, are not unusually followed very soon by varix of the saphena veins. Such varix rarely extends above the knee, and it usually terminates at the point where the great saphena is completed by the junction of the 2 trunks at the upper end of the leg. Such a condition is due to thromboses of the venæ comites of the posterior tibial artery, and the primary venous dilatation of the saphenous is the result of the establishment of a collateral circulation. If the thrombus passes away, or if the unaffected deep veins assume the collateral circulation, the dilatation is temporary; on the other hand, it is permanent. It is a common statement that varicose veins of the lower limb are not dangerous to life; but this is not absolutely true. There may be bleeding from the bruising of a thin vein; or there may be **thrombus-formation,** which thrombus may extend to the great venous channels or may lead to the detachment of emboli. It is a general belief, which is largely justifiable, that thrombus in a varicose vein is less dangerous than thrombus in a sound vein, since extension of the clot and emboli-formation are rare in the former. This is probably true if we are dealing with clots below the knee; but when we are dealing with a clot at or above the knee, the condition is always to be considered serious. Certain local conditions predispose to thrombosis in varix: 1, cysts or acute bends in greatly dilated vessels; 2, peculiarity of situation with regard to mobility; and 3, liability to injury. **Traumatic thrombus in varix almost** always begins either in cysts, cystic dilatation, or acute bends. In situations in which the affected veins are continually subject to mobility, thrombus is also apt to form. Thrombus in varix tends to spread and invade the great deep venous channels. The author then discusses the dangerous regions of varix, and says that there are 8 variations which embrace 3 distinct classes: one, in which the varix is local and limited, the saphena being practically normal; another, in which the saphena is largely if not solely affected, the valves being wanting or inefficient; and another, in which direct lateral communication exists between some portion of the abdominal veins and the nearest deep veins. In the first class, if thrombus forms, there is no serious grounds for fearing extension of clot to the great vessels; but in the last 2 classes a thrombus may very rapidly invade the deep vessels. Bennett calls attention to the fact that the extension of a thrombus in a vein is checked not only by the nearest collateral branch, but also by vein-valves, if these valves are perfect. It is an undoubted fact that thrombosis occasionally causes the spontaneous disappearance of varix. Bennett then discusses treatment at considerable length. He says that early in a case of varicose veins, especially if there is edema, massage is very beneficial.

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[1] Riforma Med., Oct. 15, 1898.

[2] Lancet, Oct. 15, 1898.

Massage is not to be used when there are cystic dilatations nor when there is any evidence of recent thrombosis. Crampy pains, indicating thrombosis, contraindicate its use. In the absence of thrombosis moderate exercise is beneficial. Excessive exercise or overtrain is always injurious. Every patient should each day, during the afternoon, lie down for an hour or so with the legs elevated. There is nothing which does so much harm as the routine use of elastic stockings or bandages. In individuals pursuing ordinary occupations, varix which causes no trouble and shows no tendency to increase should be left alone, unless for certain reasons operation is indicated. An elastic support, if not properly used, may do actual harm. If an elastic stocking is used, it must fit perfectly, and it is very difficult to get one that fits perfectly. In a varix of the thigh an ill-fitting support may do infinite harm by producing thrombosis. In an uncomplicated case of varix of the thigh the patient should never use any support above the knee. All the comfort which can be obtained from support will be furnished by support limited to below the knee. In certain cases of edema of the whole limb elastic support of the entire extremity may be indicated, but the thigh-piece should be distinct from the leg-piece; the 2 pieces should never be continuous. Varix of the leg arising from deep thrombosis after injury requires gentle elastic support, with massage as soon as tenderness has disappeared. In such cases a cure is often effected, and elastic support can be done away with after a year. The **operative treatment of varix** has very distinct limitations. Operation is often very disappointing unless the surgeon is careful in the selection of his cases. It must be admitted that, excepting in certain cases of isolated cysts and local congenital varix, anything like a cure, in the sense that patients understand the term "cure," is impossible. In general varix the most that can be hoped for is the relief of certain discomforts, the arrest of the progress of the condition, and the removal of certain complications. The first thing to bear in mind is that if the disease has involved the saphena in the thigh, the operation will not necessarily permit of the entire abandonment of elastic support. The second is that in operation on an old varix, although improvement will be effected, the patient will not necessarily be rendered sound. In uncomplicated varix operation is a measure for the prevention of complications, and is a check to the progress of the disease, but is not a cure. From the point of view of operation, varix of the lower limbs may be divided into 2 classes: In one the defect is local, with well-marked limits; in the other it is more or less general, the long saphena being implicated. These local cases should be treated by operation, the varix being removed, especially if they occur in persons of active habits, in regions liable to injury, or if there is evidence of direct communication with deep venous channels. Isolated cysts or dilatations should be removed for the same reason. Cases of the second class may be further subdivided: First, cases confirmed to the leg; and second, when the thigh is also involved, the saphena being markedly dilated. Speaking generally, if the disease is confined to the leg, operation is useless and often harmful. We can get just as good results from local treatment; and even if we operate, we shall have to continue elastic support. In cases, however, in which in general varix there is cystic dilatation of the long or short saphena about the middle of the leg, operation is indicated in an active subject. The condition in this class of cases which most urgently calls for removal is a very tortuous and dilated thin-walled vein passing obliquely across the shin, for such a vein is especially liable to injury and may be the starting-point of a serious thrombosis. When the saphena in the thigh is involved, there being at the same time extreme varix of the leg, the results of operation are most striking. Bennett advises the removal of a length of the saphena extending from the point below the knee at which the 2 venous trunks from the leg join, to a point a little above the lowest third of the thigh. In varix the result of thrombosis, if dilated veins are concerned in carrying on the collateral circulation, operation is unjustifiable, because in such a case, if there is edema of the limb, operation will lead to the increase of such edema; but if in a case of varix due to thrombosis there is no sign of edema, they may be treated as an ordinary uncomplicated varix. In the vast majority of cases of thrombosis in varix we should remove at once, if practicable, the thrombosed vessel with its contained clot; and this treatment is particularly applicable to cysts and local masses of varix in which we suspect communication with deep veins.

Quénu and Duval[1] describe a method for the **transperitoneal ligation of the iliac artery,** the ligation being bilateral. The operation may be applied, for instance, to produce atrophy of an enlarged prostate or a uterine fibroma, or to prevent hemorrhage during the removal of the rectum and the sigmoid flexure, or the uterus. The authors strongly advocate the transperitoneal method as the only rational one. The operation is safe and easy, and the circulation is soon reestablished in the pelvic region. The operation is performed as follows: The abdomen is opened in the mid-line from just below the umbilicus to just above the symphysis. A vertical incision is made in the posterior layer of the peritoneum and the artery is exposed; the middle of this incision is on a level with the upper margin of the sacrum. The operation is more difficult on the left side than on the right, for the sigmoid flexure is short and anchored by a narrow mesosegment. In such cases it will be necessary to cut through both layers of the mesentery, avoiding the vessels which pass to the large intestine. Hence, in some cases on the left side we must pass through 3 layers of the peritoneum to reach the artery.

Schultes[2] advocates **suture of wound of the veins** in certain cases; and he says that in a wound of the side of a large vein suture is infinitely preferable to lateral ligature or forceps-pressure. Compression will be almost sure to produce thrombosis; a lateral ligature may slip off, and when we use a clamp we are not sure that the edges of the wound in the vein will unite. There are 26 cases on record of suture of wounds in large veins; 23 of these recovered without trouble, and the 3 deaths which occurred were unconnected with the suture of the vein.

Robert H. Dawbarn[3] advocates the use of a **purse-string suture** for the arrest of **tonsillar hemorrhage.** This is a proceeding which Lefferts has said is impossible; but Dawbarn has used it, and has not even found it difficult. The patient was anesthetized, and previous to and during the administration of the anesthetic a gag was in the mouth, and the tonsillar stump was held between the forefinger on the stump and the thumb outside on the angle of the jaw, so that there was very little bleeding. The patient was placed with the injured side up, and by the employment of a forehead-mirror the parts were well illuminated, and Dawbarn, using a large semicircular needle with a needle-holder, readily inserted a constricting purse-string suture. The bleeding in such cases comes from 1 of the ascending 2 of the 6 tonsillar arteries, and we should begin with the passage of the lowermost of the 4 stitches shown in the accompanying diagram. Tightening of this stitch may be found to control the hemorrhage, and the other 3 stitches are thus rendered easier of insertion, or possibly useless. The silk purse-string round the base of the stump ought to remain in place for 36 hours or 2 days. The gravest cases of bleeding are found in adults with hard hypertrophied tonsils, and in some of these cases it would be well to pass a purse-string suture before using the guillotine. Dawbarn has done this in 1 case, and the result was an entirely bloodless operation, the suture being tightened before the tonsil was amputated.

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[1] Rev. de Chir., Nov., 1898.
[2] Deutsch. Zeit. f. Chir., vol. 49, p. 624, 1898.
[3] Med. News, May 20, 1899.

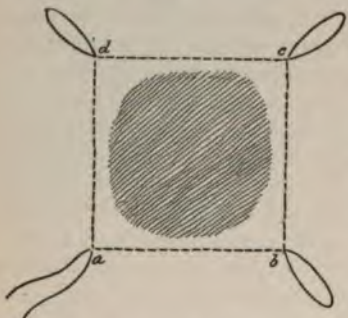

FIG. 30.—The shaded portion represents the tonsillar stump. The letters indicate the order in which the needle is 4 times introduced, following the dotted lines (Med. News, May 20, 1899).

Schneider[1] advocates the use of **hot air as a hemostatic,** directing a blast of hot air from a Hollander apparatus upon the bleeding surface—for instance, upon a divided bloodvessel, upon a bleeding liver, or a bleeding kidney. The organ is not injured by the heat, because at a distance of 5 mm. from the apparatus the degree of heat is only 39° F. Steam hides the field of operation, and is less satisfactory and less certain.

Skene[2] advocates the employment of **electrohemostasis in surgery.** He grasps a portion of bleeding tissue with forceps, or grasps the end of the bloodvessel, and then an electric current generates heat in the jaws of the forceps; the tissue is thus desiccated, the walls of the arteries become united, and hemorrhage is prevented. The heat does not burn the tissues, but simply cooks them. A current of 2 ma. will heat the smaller instrument and 8 ma. the larger instrument, a pressure of 3½ volts being employed.

Cavazzani[3] discusses the old method of **arresting hemorrhage,** which has been lately reintroduced by Tuffier. In this procedure a strong pair of forceps crushes the vessel and so breaks the internal coat, and if blood does not ooze on the completion of this procedure, there is no danger of subsequent oozing. It is claimed that this method is rapid and safe, does not injure the tissues, and is free from certain dangers which attend the use of the ligature. He has seen the method used successfully in an excision of the tongue, not a single ligature having been employed. [This procedure seems to be identical with the one suggested by Maunoir in 1820, and called by him machure.]

E. A. Lermitte[4] advocates the use of **suprarenal gland extract**

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[1] Sem. méd., Aug. 3, 1898.

[2] N. Y. Med. Jour., Feb. 18, 1898.

[3] Gaz. degli Ospedali, Sept. 25, 1898.

[4] Brit. Med. Jour., Feb. 25, 1899.

as a hemostatic; he used it with great satisfaction in a case of nasal hemorrhage. He took a saturated solution of boric acid containing 2 gr. of dried extract of suprarenal gland to the ounce and used it locally.

Bolognesi[1] discusses the use of **saline solutions.** He says that such solutions can be introduced into the organism subcutaneously, by one of the serous surfaces, the vessels, or the intestinal tract. If the intraserous route is chosen, the introduction is made in the peritoneum, an incision being made above the umbilicus to the linea alba and a needle pushed in as in tapping for ascites. It is rarely that an intestine is perforated by such a procedure. But the operation is painful, and any neglect in asepsis will result in peritonitis. Hence, the operation should not be practised. An intravascular injection is usually made into the vein at the bend of the elbow; or in the internal saphenous vein over the ankle. The saphenous vein is easy to find even in stout people, and is larger than the vein at the bend of the elbow, and at such a distant point from the heart, even if air is introduced, there is not much danger. The injection should be thrown in slowly; not over a liter entering in 10 minutes. For a person who is inexperienced this intravascular injection is a distinct operation, because the vein is sometimes hard to find, and a person who is not a surgeon fears the introduction of air, and in any case there may be some septic accident. Pozzi published a case of acute edema of the lungs following this procedure. Heart-disease and weakness of the heart-muscle are contraindications. Some surgeons before injecting the saline fluid prefer to draw off some blood. Because of these difficulties and troubles many prefer to use the serum subcutaneously, and this will always answer except in very urgent cases. The fluid should be thrown into a region rich in cellular tissue, such as the axilla, the gluteal region, the thigh, or the abdomen.

DISEASES OF THE LYMPHATIC SYSTEM AND THYROID GLAND.

Booth[2] makes a report on **partial thyroidectomy,** founding it upon 8 cases of Graves's disease on which he has operated. Of these, 5 were cured; in 1 there has been no improvement; and 1 in which the operation was performed 6 months ago there has been distinct improvement, and 1 case was fatal. He concludes that cases may be cured by this method, and believes that the so-called disease is a coincident symptom, expressive of a primary neurosis complicated by a secondary glandular intoxication. The real cause of the disease of the gland is not known. In view of the fact that the operation may be curative and that its mortality is about 7%, it may be advised, but not as a routine plan of treatment, since sudden death may occur during or soon after the operation. The reason for this has not been explained with certainty.

Sir William Stokes[3] discussed **thyroidectomy in exophthalmic goiter,** in which the thyroid was enlarged, particularly the central lobe, the lateral lobes being somewhat enlarged. Stokes removed the large central tumor, and during the operation the patient had 3 alarming attacks of dyspnea. A small growth was found to the right on a plane posterior to the larger growth. This was also removed, and with it a portion of the right lobe of the thyroid. Some hours after the operation the patient had several attacks of serious dyspnea, in which the face became deathly pale, and these attacks were followed by profuse sweating. There was nothing noticeable during the convalescence, except on the fourth and fifth days, when there were alternate attacks of extreme heat and cold. Three weeks after the operation the patient's symptoms had very notably improved. The chief theories that have been put forth in regard to the cause of the disease are 3 in number: 1, Trousseau's view that the heart-affection is primary and is produced by disturbance of the sympathetic system; 2, that the primary lesion is central; and 3, that the disease is caused by the secretion of a toxic substance by the thyroid gland. Grube supports the view that the disease is infectious because it may arise in cases of endemic or hereditary goiter and may be accompanied by enlargement of the lymphatic glands. It is known that **Graves's disease** may have in it a hereditary factor. The usually assigned causes, such as shock, excitement, overexertion, etc., cannot be of the first moment, except possibly by rendering the system less able to resist infection. The neuropathic theory has few adherents, although some claim to have been able to produce exophthalmos, enlargement of the thyroid, and tachycardia in rabbits by dividing the restiform bodies. The view chiefly held is that the disease is due to a toxic substance secreted by the thyroid; although some maintain that this view cannot be established if one or the other of the symptoms is unilateral, or when the signs suddenly appear after a mental or physical shock. There is much discussion as to the therapeutics of the disease. Bruns holds that it is very exceptional for an exophthalmic goiter to diminish under the administration of thyroid preparations, and that when they are given the cardiac and nervous symptoms are usually aggravated. In other cases of bronchocele, exclusive of the cystic form, he found benefit in a large number of cases from thyroid treatment. The form that is most improved by it is the simple hyperplastic goiter. Most physicians agree that the **thymus-gland treatment** of Graves's disease is useless. The results established by operative treatment indicate that the thyroid is the seat of the primary lesion. Lemke maintains that the symptoms are due to toxic agencies which originate in the gland, and he strongly advocates surgical treatment. Allen Starr has published the record of 190 cases, a large proportion of which were permanently improved by operation, 74 being reported as cured, 45 as improved, and 3 as not improved. There were 23 deaths immediately after the operation, not due to either hemorrhage or sepsis, but possibly to poisoning of the entire system during the operation by absorption of the secretion of thyroid gland. This may be produced by excessive handling of the tumor during the operation, the existence of torn vessels, or hypersecretion due to the use of ether as an anesthetic. Starr therefore suggests that some other anesthetic should be used, and alludes to the fact that cocain is advised by Kocher. The symptoms which preceded death were those of collapse and heart-failure. Among other methods of treatment employed in the cases mentioned was local depletion, which has been advised by Trousseau; also the operation known as **exothyropexy,** which consists of stripping the capsule off the gland, and fixing the gland in the superficial wound so as to cause shrinking from exposure to air and from thrombosis from the venous sinuses. Another operation is **division of the cervical sympathetic nerve,** and another is **ligation of the thyroid arteries.** Osler leans rather to the neuropathic view of the causation of this disease, and says that many of its features can be explained on the hypothesis that it is primarily an affection of the medulla oblongata. Stokes believes that the following conclusions are justified: 1. That in a large proportion of cases shock appears to be the starting-point of the disease. 2. That in one type of the disease the first obvious deviation is thyroid enlargement. 3. That in such cases tachycardia, palpitation, and exophthalmos usually follow in the order named. 4. Two distinct forms of the disease—the complete form and the incomplete form—are recognized; for purposes of prognosis and for reaching a conclusion as to treatment a distinction must be made between cases beginning with tachycardia and those beginning with thyroid enlargement. 5. Only very transitory benefit, as a rule, can be derived from internal treatment. 6. When the thyroid gland is primarily affected partial removal of it is apt to be followed by noticeable improvement or even entire recovery. This seems to strengthen Kocher's statement that in the majority of cases requiring thyroidectomy irrespective of Graves's disease, total extirpation is not indicated. 7. That as in the case reported 2 years have elapsed since the operation without recurrence of the symptoms, the treatment may be considered successful.

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[1] Med. Press, Mar. 8, 1899.

[2] Med. Rec., Aug. 13, 1898.

[3] Brit. Med. Jour., Oct. 29, 1898.

Berthold Ernst Hadra[1] describes a method for facilitating the enucleation of tumors of the thyroid gland. He says that in 1898 von Manteuffel described a method of resecting a **parenchymatous goiter** very similar to that described by the author in 1895. His operation is as follows: "In a unilateral or medial tumor a long median incision from the jaw to the sternum is made; in a bilateral case, Kocher's crescentic incision from one sternocleidomastoid muscle to the other, the highest convexity close to the sternum, is preferable on account of its least disfiguring scar. Then the platysma is divided in the same line. Next the muscles are separated in the median line, drawn to the sides, and only when necessary nicked or severed, to be afterward reunited. Now the most important point to facilitate the operation is to free the tumor from that fine capsule, containing muscular strata, which binds the organ down. This membrane has to be well divided and broken all over by detaching it from the gland, sideways and downward. Then, and only then, the gland or the tumor can easily be brought, with all its processes, into the field of operation by the operator's fingers. This maneuver never must be omitted, or one will have to work in the dark. Now I take the diseased raised portion of the gland, as much as conveniently can be grasped, at its deepest point, between the index-finger and thumb of my left hand, compressing in this way the bloodvessels from below, and then the incisions are made in the direction where the large veins can be best avoided. The incisions have to go through the whole affected portion down to your left-hand fingers, and have to be repeated until all the nests of colloid accumulations are exposed. They are then well scraped out with a sharp spoon, and with the compressing fingers still controlling hemorrhage the remaining walls, which consist of healthy parenchyma (pared, if they seem too massive), are brought together with a running catgut suture until they are drawn well together into 1 mass. This last part is best done by the assistant, so as to let the operator keep his hold on the bloodvessels. Of course, this procedure has to be repeated on other portions, if necessary. The wound is then closed with any material the surgeon prefers, and with or without drainage. I would warn against using silk for the deep sutures. It may not remain dormant, but cause fistulous tracts, as has happened to me once, necessitating reopening of the wound to remove the foreign body. I would add that almost always a moderate fever followed my operations, which was, no doubt, an absorption-fever, and should not cause any alarm."

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[1] Ann. of Surg., Dec., 1898.

A. Wolfler,[1] in speaking of **inoperable goiter** that greatly interferes with some important function or that threatens suffocation, advises **operative dislocation.** The goiter is raised from its bed without cutting the arteries, and is transplanted to some other situation where it will not interfere to so great an extent. In 1 case he applied the thermocautery to cause shrinkage; but he thinks after this operation the goiter will shrink a little even if the cautery is not used.

Theodor Kocher[2] makes a report on a series of 600 **thyroidectomies.** These are added to his previous series of 1000 cases reported in 1895. The first 1000 cases were operated upon by Kocher himself. Of the last 600 he performed 450, and the rest were performed by his assistants. He states that 90% of the cases which come to the hospital at Berne are so improved by medical treatment that operation is not necessary. The medical treatment followed is the administration of some form of iodin or of thyroid gland, and if there is going to be any improvement it will be noted within 3 or 4 weeks. He does not consider that thyroid extract gives any better results than preparations of iodin. Thyroid extract is somewhat dangerous in Graves's disease, as its administration is often followed by a rapid loss of flesh and strength, and the patient may suddenly die in an unaccountable manner. Operation should be performed if the case does not improve after long-continued medical treatment; also when there are large isolated tumors, when cyst-formation is taking place, and when there is a suspicion of malignancy. Difficulty of breathing is a strong indication for interference. Operation is much safer if done under local anesthesia than under general anesthesia. Kocher operates under the influence of a 1% cocain solution; the operation is performed with ease and there is very little pain. His method of operation is as follows: He makes a curved incision across the neck, with its convexity downward, the scar of such an incision being much less than that produced by a longitudinal or "T"-shaped cut. He does not divide the muscles in the middle line, but separates them. He next proceeds to what he speaks of as the luxation of the tumor. The fibrous capsule is divided down to the gland, the superficial veins being ligated; the tumor is freed and the mass is raised out of the wound; the vessels being thus made tense are rendered visible and are ligated with ease. The inferior thyroid artery must be tied with great care, so as not to include in the ligature the recurrent laryngeal nerve. Next are ligated the superior thyroid artery, the venæ comites, and the venæ thyroideæ imæ. He crushes the isthmus of the gland with powerful forceps. The colloidal material from the isthmus is pressed out and a very thin band of tissue thus remains to be ligated. Except in infected cases, the operation is aseptic rather than antiseptic, the wound being irrigated with salt solution. It is very rare that **cachexia thyreopriva** ensues upon this operation; there are only 4 cases in the 1600 operations. The reason of this is that so-called total extirpations in the vast majority of cases are really partial extirpations, some small remnant being left, often the pyramidal process remaining behind. Of his last 600 cases, 18 were malignant, and 6 of these died. There were 11 cases of strumitis, 2 of which were fatal, and 15 cases (2 fatal) of exophthalmic goiter. The remaining 556 cases were colloid struma, and 1 of these was fatal, death being due to chloroform. Thus the mortality is 0.1%. In view of the fact that this death was due to chloroform, we should be justified in saying that in the large series of cases of colloidal goiter the mortality was zero, and in spite of the fact that many of these tumors were of large size and many of the patients were in an extremely weak and anemic condition.

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[1] Beiträge z. klin. Chir., Band xxi., Heft 2.

[2] Correspondenz-Bl. f. schw. Aerzte, Sept. 15, 1898.

The French Congress of Surgery in Paris, Oct. 18–22, 1898,[1] discussed the **surgical treatment of goiter.** Reverdin presented a paper on the surgical treatment of goiter, except cancerous or exophthalmic goiter. He said there were the following indications for operation: 1. Urgent necessity, such as marked dyspnea and septic inflammation. 2. Necessity, such as large size of the tumor, which is increasing; functional trouble; and failure of medical treatment. 3. Cosmetic reasons. Iodin and iodoform are the only drugs which have proved useful for hypodermic injection into the goiter. Iodoform when thus used is dangerous, and its injection has been followed by sudden death; and if injections of iodin have been used and have failed to cure, the goiter has been put in a much worse condition for the necessary operation. Iodoform does not possess the dangers of iodin, but it is only of value in general vascular goiters, which are often cured by medical treatment. This surgeon says that in grave cases we should use local anesthesia or no anesthetic for operation. In a simple case with little dyspnea we may give ether. He believes that Kocher's transverse incision is a very excellent one, and leaves the smallest scar. An oblique incision may be used if the surgeon prefers it; but a vertical incision should never be made. The veins should be tied, and divided by ligatures. The sternocleidomastoid muscles are lifted out of the way, and the muscles in the median line should be separated rather than cut. The cellular tissue which lies over the true capsule should be divided, but the fibrous capsule of the gland proper should not be interfered with. The author says that total extirpation as an operation has been abandoned. Partial extirpation is a favorite operation, and Reverdin describes how he believes it should be effected. Resection aims to preserve a part of the organ, and when this is performed the superior thyroid arteries are tied, and the portions left of the glands are attached to the inferior thyroid arteries. Hahn ligates the superior thyroid arteries, and compresses the inferior thyroid arteries with forceps covered with rubber while he is carrying out resection. In single or multiple tumors the process of intraglandular enucleation may be adopted.

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[1] Ann. of Surg., Apr., 1899, and Jour. Am. Med. Assoc., Dec. 17, 1898.

While this is being carried out some surgeons compress the vessels with forceps; some ligate the arteries; Rose employs a temporary elastic band around the tumor. Another operation is known as **évidement**; in this the capsule of the gland is incised and the contents of the goiter are scraped out with a spoon. Poncet speaks of **massive enucleation.** In order to accomplish this, an incision is made in the tumor and its nodules and cysts are removed *en masse,* keeping inside the capsule. Cysts may be treated by puncture, with or without the injection of irritants; drainage; incision, with or without resection and suturing the cyst-wall to the skin; and enucleation. Enucleation is infinitely the best method. In a series of 3408 cases collected by the author, complete extirpation was performed in 8.97 %; partial extirpation in 3.46 %; intraglandular enucleation in 78 %; and resection in the balance. The most common cause of death is some respiratory trouble. Few deaths are caused by circulatory trouble, hemorrhage sepsis, tetany, and myxedema. In the entire list of enucleations there is not a death from 1 of these 4 latter conditions. Among the accidents which may occur is the entrance of air into veins; careful technic will obviate this. Another is primary arterial hemorrhage. Another is reactionary or secondary hemorrhage. The first is produced by ill-applied ligatures or struggling of the patient; the second by infection. There is really no great danger of primary hemorrhage during enucleation; but if the bleeding become very severe the surgeon should abandon enucleation and perform extirpation. It is possible in any of these operations to injure the recurrent laryngeal nerve; but there is little risk, even in enucleation. It is very rarely necessary to do tracheotomy; and it should not be done unless it is absolutely demanded, because the operation is apt to be followed by sepsis. The operation to be chosen, if possible, is enucleation. It gives the lowest mortality, the least danger of tetany and myxedema, and the least primary hemorrhage; but, of course, it can only be used in a solid or a liquid encysted goiter that has never been subjected to irritating injections.

W. E. Schroder and S. C. Plummer[1] report 2 cases of **injury to the thoracic duct** in operations on the neck. In the first case, in raising a tumor from the wound in the neck there was a hole torn in a lymphatic vessel, from which there was a discharge of transparent, yellowish fluid, and several additional holes were torn, but only the orifice could be seen and the vessel could not be made out. From the horizontal position of the vessel, it was supposed to be the subclavian branch of the thoracic duct. The wound was packed with iodoform gauze, and the patient recovered. In the second case, during removal of tuberculous glands from the neck, suddenly a milky fluid flowed freely into the wound, evidently springing from injury of the thoracic duct or one of its branches. The opening was sought for and discovered, and when the vessel was raised up there was aspiration of air into it. The fluid appeared in gushes with the respiratory movement. The vessel was ligated, and 2 smaller openings which were discovered were also ligated. This patient recovered.

W. H. Lyne[2] reports a case of **stab wound of the thoracic duct.** The wound was above and behind the left clavicle and parallel with the posterior edge of the sternocleidomastoid muscle. There had first been a hemorrhage, which had ceased, and this was followed by a profuse flow of milky fluid from the wound. The wound was packed with gauze, and 7 hours later it was found that this oozing of milky fluid had ceased. The patient recovered, although there was some suppuration.

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[1] Ann. of Surg., Aug. 1898.

[2] Va. Med. Semi-monthly, Aug. 26, 1898.

Charles N. Dowd[1] writes on **tuberculous cervical lymph-nodes.** This is the most common form of tuberculosis in children. It is most frequent between the third and the tenth years. It is very uncommon in infants. In the neck there are 2 main chains of lymphatics, the anterior and the posterior. The anterior accompanies the internal jugular vein. The nodes at its top are in close communication with the pharynx, and can easily be palpated when there is acute tonsillitis or acute pharyngitis. The submental and submaxillary groups communicate with it from in front, and above it lie the superficial nodes over the parotid, which are rarely tuberculous. In the posterior site there are both superficial and deep nodes, and this site runs downward and somewhat backward from the mastoid region. Under the sternomastoid muscle, near its top, it communicates with the anterior chain. When cervical nodes become tuberculous, it is usual for both chains to be more or less involved; although as a general thing those near the pharynx are more enlarged and show more advanced inflammation than those lower down and further back. For instance, those near the pharynx may be in a state of cheesy degeneration, and those at the lower end not inflamed at all. As a rule, the inflammation is slow in progress; but it differs in different individuals, as some bacilli are less malignant than others, and some people have more resisting power than others. In some cases the lymph-nodes become surrounded by fibrous tissue, and may remain in this state for years or may undergo calcareous degeneration; but in these so-called quiescent cases there may be sudden inflammation and suppuration. In some people the inflammation spreads with rapidity, and very rapidly small nodes are widely disseminated. In those cases the nodes are soft and very loosely held in their capsules, and there is no fibrous tissue about them. If the node is left alone, it tends to break down and open a way for evacuation through the skin, and this process causes unsightly scarring. In some cases the tuberculous process extends to other organs. The statement is frequently made that pulmonary tuberculosis seldom results from tuberculosis of the cervical lymph-glands; but Dowd maintains that infection of the lungs does occur in a large proportion of the cases. It is by no means uncommon to find people with phthisis who give a history of having had tuberculous lymph-glands in childhood. The most common point of infection is the pharynx, which is very prone to inflammation in children. Nicoll studied 500 cases, and found that the enlargement was generally first noticed at the upper part of the carotid sheath, near the bifurcation; that the deepest nodes involved were the postpharyngeal; in 70% of the cases the disease was bilateral, and the swelling would appear with a fresh attack of catarrh, and then disappear. The swelling at first was a simple hypertrophy, and the tuberculous inflammation occurred later; but in some cases he found tubercle-bacilli in very small nodes recently involved; and hence he maintains that the tuberculous process in the glands may be primary. He found that a number of tonsils and adenoids which he removed contained tubercle-bacilli embedded in the tissue. Stark believes that carious teeth are the most common source of infection; but in cases in which carious teeth are the cause the submaxillary nodes should be infected first, and clinically this is not often observed. Milton, in 1000 Egyptian cases, found that vermin on the head was the most usual exciting cause. Eczema, rhinitis, otitis, or any inflammation of the head may occasion enlargement of the cervical lymph-nodes, and these nodes may become tuberculous; but those which are in close communication with the pharynx are usually the first affected. Hence the conclusion is fair that the pharynx is the most common site of infection. The diagnosis is not always easy, because inflammations of these glands often follow the exanthemata, pharyngitis, tonsillitis, scalp-disease, and other infections. Such conditions usually run an acute course. When they involve the deep nodes phlegmon results, which can be easily recognized from tuberculous inflammation. When the superficial nodes are thus acutely involved, the inflammation rapidly abates or small abscesses form. By keeping the case under observation a little while, it is possible to make a diagnosis between tuberculous and pyogenic inflammation. There are some cases of chronic enlargement of the lymph-glands in which diagnosis is very difficult; cases in which the glands are not very large and do not appreciably enlarge from month to month, and in which there is little or no pain. Most of these cases are undoubtedly tuberculous, and it is usually possible to discover about the head some slight inflammation which is the exciting cause. Volland states that 68% of all enlarged glands in the neck are tuberculous, and Nicoll places the number as high as 80%. It has been suggested that **tuberculin** may be used as **a test** for suspected cases, but this test is not to be relied upon implicitly. The diagnosis of cancer or syphilitic disease can usually be made by a recognition of the associated conditions. It is rare to find lymph-sarcoma in the neck alone, but the condition is apt to be disseminated throughout the body. In the treatment of these cases, it is first necessary to improve the general health, no matter what else we do. Most cases are, of course, best treated by free removal of the glands. By this operation we substitute a rapid removal of the nodes for a process of slow discharge which consumes years; we lessen the danger of general infection, and leave scars much less marked than are produced by spontaneous openings. When we make an incision, usually large numbers of diseased nodes will be found, when only a few could be detected before the operation. Complete removal should be practised; not removal of only a few of the largest ones. The incision should give free access and should leave the smallest possible scar. A common incision is a first incision along the line of the carotid, and side-cuts from this, or other cuts parallel to this. Senn uses an S-shaped incision. Kocher uses transverse incisions, because longitudinal scars on the neck stretch and transverse scars bend. But it is impossible satisfactorily to reach extreme disease through a transverse incision without making several incisions or making the one cut extremely long. Dowd employs the following incision: The cut is made transversely under the margin of the lower jaw and taken backward as far as the mastoid process, and is then carried down along the hair-border, the hair having been previously shaved. It can be carried as far forward and as far downward as may be necessary. The skin-flap is raised and turned forward and downward. This exposes all of the posterior chain, the upper two-thirds of the anterior chain, the submaxillary, and the submental groups. If necessary, a second incision can be made over the lower part of the anterior chain. A very slight scar is left by this operation. The transverse part is under the jaw. The vertical part is partly hidden by the hair and the collar. In many instances it is necessary to cut the sternocleidomastoid in order to gain good access; and if this is done its ends should be afterward sutured with catgut. The internal jugular vein may be cut or torn so as to require ligation; but this is but slightly dangerous. The nerve should not be injured so as to occasion deformity. In the posterior portion of the incision branches of the cervical plexus are met with. We may have to cut the superficial branches, but not the deep ones. It may not be possible to preserve the spinal accessory in the sternocleidomastoid muscle, but cutting will produce no ill-effect. Milton has cut it in over 50 cases, and has never seen any symptoms follow. The incision under the jaw may divide some of the lower filaments of the facial nerve, and as a result there may be slight temporary dropping of the lower lip. Even this extreme removal of the lymph-glands seems to produce no ill-effect on the patient. Probably their functional power was already destroyed by the disease. Lymphatic anastomosis is very free; new channels are readily formed and a compensatory circulation is soon established. It is very unusual to find the record of any case which, as a result of glandular excision, has shown evidences of interference with the lymphatic circulation. In collected cases, if we deduct cases of diseases which were not tuberculous, we have the following results: Of 309 patients, 202, or 65.4%, were apparently cured; 57, or 18.4%, living, but with local or general tuberculosis; 50, or 16.2%, died of tuberculosis. Dowd then analyzes his own 36 cases, and comes to the conclusion that tuberculous cervical lymphomata should be freely removed, except in patients whose general condition renders them unfit for such procedure, and the patients should be kept under observation for a long time, and, if other diseased nodes appear, they should also be removed.

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[1] Ann. of Surg., May, 1899.

BONE-DISEASES AND FRACTURES.

Martini[1] discusses the value of calcined bone in effecting the **repair of osseous defects.** He made his experiments upon the skulls of rabbits. He concludes that calcined bone is the very best material with which to repair bone-cavities. In the first place, it is a physiologic substance which supplies lime salts to bone-forming tissues. It is prepared readily; is kept easily; is sterilized certainly by heat; fills the cavity perfectly, and is so very porous that granulations readily enter into the spaces.

Grekoff[2] advocates the use of **calcined bone-plates in filling osseous defects.** This method was originally suggested by Barth, and Grekoff has used it twice to supply cranial defects in children, resulting from operation. The calcined bone is gradually replaced by a new growth of bone, and it acts as a skeleton or arbor over which the new bone grows from the skull-margins. Cancellated bone should be used to make the plates. The most suitable material is the scapula of a calf.

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[1] Il Policlinico, Aug. 15, 1898.

[2] Centralbl. f. Chir., Oct. 1, 1898.

Arbuthnot Lane[1] has reported 2 cases in which he effected **restoration of the shaft of the ulna** by the insertion of the femur of a rabbit. One case was in a child who labored under a congenital abnormality of the ulnar shaft, and the ulna was composed of 2 separate parts, the extremities of which overlapped. In this case he exposed the fragments, separated them from the adjacent structures, brought the lower fragment, by extension, into normal position, took the femur of a rabbit, split it longitudinally and wired the halves of the fragments to the ulna, thus bringing the longitudinal axes of these fragments into normal relationship and retaining the lower fragment level with the lower end of the radius. This case was thoroughly successful. The second case was in a man who had lost the shaft of the ulna. The femur of a large rabbit was wired to the ends of the ulna, and the result was entirely satisfactory.

Max David[2] made some experiments to decide which was the best **material for mending osseous defects** in the cranium—ivory or dead bone. He showed that ivory can be healed over in an osseous defect without producing any apparent symptom, the bone being derived from the scar, from the dura as well as from the pericranium, the adjacent bone in the skull not being responsible for the ossification. When dead bone was used the process was practically the same as that taking place when ivory was employed, but was more rapid. The dead bone is eventually absorbed, new bone taking its place. If living bone is transplanted into a defect, it becomes vascularized and continues to live.

Valan[3] writes on the fate of **bone implanted in the cranium.** He says that some believe that such bone is necrosed and absorbed and replaced by new bone; others believe that such bone lives. The author does not absolutely accept either view. He says that the central portion of the implanted bone undergoes necrosis, but that some of the peripheral portions retain their vitality and become fused with the new bone. The younger the subject and the thinner the skull the larger is the peripheral area which becomes vitalized. Calcined bone acts better than decalcified bone, because the ensuing bone-tissue is stronger.

Bruns[4] writes on **coxa vara.** He says that the disease becomes manifest to the observer by defects in walking, the child stumbling, especially if it walks alone; although these defects are much amended if the attention is concentrated on the act of walking. The walk resembles that of a child with double congenital dislocation of the hip-joint. The diagnosis may be made clear by taking a skiagraph. Kirmisson[5] maintains that in coxa vara the diagnosis may be made and must be confirmed by the use of the x-rays. This author mentions as an occasional cause of the condition fracture of the neck of the femur. Fabrikante[6] maintains that coxa vara is usually due to rickets, **incurvation of the femoral neck** occurring. This incurvation consisted in a bending of the femoral neck either downward, forward, or backward; when it goes forward or backward, with a curve also in the longitudinal axis. If the curve is marked, but little can be hoped from orthopedic treatment. If an operation is performed, it should consist in the removal of a wedge-shaped piece from the neck of the femur, the base of the wedge being forward. The milder cases are treated by massage and weight-extension; extension during the night, massage during the day, and the patient getting about during the day. In chronic cases a high shoe is useful. Rachitic tendency should also be combated. Sir Thornley Stokes[1] defines coxa vara as a bending downward of the femoral head, due to curvature of the femoral neck, the neck being also bent upward and forward. In some cases the head of the bone may be below the level of the tip of the great trochanter. The disease occurs between the ages of 3 and 20 years; usually affects but 1 side, and is most common in males. The **causes** assigned are rickets, osteomalacia, occupation, and possibly softening due to tubercle. Diagnosis must be made from hip-joint disease, congenital and traumatic dislocation, fracture, enlargement upward of the acetabulum, and rachitic curve of the upper end of the shaft of the femur. The **symptoms** which he mentions are the gradual onset of lameness, pain in front of the joint, shortening to the extent of ¼ in. to 2½ in., diminished range of motion, especially in abduction, eversion of the limb, limited adduction, absence of swelling, and absence of obliteration of the gluteal fold. If the limb is flexed until the foot touches the opposite knee, there is rotation outward. There is a normal arc of rotation of the great trochanter, although the range of rotation is somewhat lessened. The popliteal surface touches the table without the spine arching. The Röntgen rays confirm the diagnosis. **Recent cases** are treated as rickets, walking being restricted and the patient resting in bed or employing a Thomas splint. In severe cases linear osteotomy is performed or a wedge of bone is removed from the femoral neck.

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[1] Lancet, Nov. 19, 1898; Clinical Society of London.

[2] Ann. of Surg., Feb., 1899; from Arch. f. klin. Chir., Band lvii., S. 533.

[3] Arch. fer le Scienze Mediche, vol. xxii., No. 19.

[4] Rev. d'Orthop., Nov., 1898. [5] Ibid. [6] Rev. de Chir., Nov. 10, 1898.

G. Blumer[2] reports a case of **post-typhoid bone-inflammation** due to colon-bacilli in a woman who had an attack of typhoid fever lasting 26 days. In the fourth week of the fever she developed pain and swelling, but no redness or edema, at the junction of the fourth rib with the sternum. The hypodermic needle introduced did not discover pus. About 5 months later a nodule was removed from the left breast, but the wound did not heal and a sinus remained, and some 3 months later a portion of necrosed fourth rib and costal cartilage were removed. Bacteriologic tests showed pure culture of the Bacillus coli communis.

The *Medical Record* of New York of Aug. 13, 1898, contains an editorial on the **ambulatory treatment of fractures.** It states that a great deal of confusion exists in the minds of some who have written upon this subject as to exactly what ambulatory treatment is. Some writers appear to think that it consists in applying an ordinary plaster-of-Paris dressing in the ordinary way to a fractured leg and permitting the patient to get about upon crutches. But such a method is not the real ambulatory treatment. The patient is getting about, but he is getting about because he learns to use crutches, and when he gets about in this way his discomfort is increased because of swelling of the foot, the swelling being due in part to the dependent position and in part to the fact that the muscles are not acting, and hence are not assisting the return of venous blood. The true ambulatory treatment consists in applying plaster-of-Paris so that the limb is suspended in a rigid cast from the knee down and has a thick pad beneath the foot. The body-weight is then carried by the splint, which must have a thick, padded collar of plaster-of-Paris at its outer end, just below the tuberosity of the tibia, and on this collar the body-weight rests, and not on the sole of the foot. The splint must be sufficiently strong not to buckle under pressure, and must not be so heavy as to keep the patient from easily getting about. If such an apparatus is applied soon after the occurrence of a fracture, and the patient soon attempts to walk about, perhaps using 1 or even 2 canes for a time, we are then employing the real ambulatory treatment. Fractures close to the knee-joint should not be treated by this method. Fractures of the femur may occasionally be treated by it, but the apparatus must be much more cumbersome, and there is greater difficulty in keeping up efficient extension. Many surgeons hesitate to employ this form of treatment because of its effect on the mind of the patient, as people often hold to the view that bones must be set and held firmly in position. If we neglect to carry out the traditional method, we may be charged subsequently by the patient with incompetence and neglect. This is one reason why so many surgeons have hesitated to depart from old methods. But in selected cases the results of the ambulatory treatment are sufficiently favorable to encourage us to employ it.

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[1] Brit. Med. Jour., Nov. 26, 1898.

[2] Pacific Rec. of M. and S., Nov. 15, 1898.

H. Folet[1] reports a case in which he believes **thyroid treatment** administered during a few days hastened the **consolidation of a fracture** which was slow in uniting. Cases have also been reported by Quénu and Reclus.

M. Quénu[2] administers **thyroidin in delayed union** of fractures. It has been maintained that thyroidin contains the stimulating substance of thyroid extract, but is free from certain noxious materials. Quénu reports 2 cases that he believed were improved by this method. One of the patients in whom there was delayed union had no thyroid gland, and was suffering from postoperative myxedema subsequent to thyroidectomy. Reclus spoke of 3 cases in which he had employed this treatment; 1 with apparent success and 2 without result.

Goliakovsky[3] writes on the treatment of fractures, and asserts that **immobilization** of all treatments most **favors muscular atrophy and ankylosis.** The judicious use of massage greatly shortens the treatment; but unfortunately it tends to develop a vicious position of the fractured ends, and sometimes leads to the excessive development of callus, fatty embolism, and lymphangitis. The best plan of treatment is what is known by the Russian surgeons as early mobilization, the patient assuming the erect position soon and walking, the callus forming more rapidly because of the walking and the venous hyperemia and the rubbing between the fragments. He says that a fractured femur, if immobilized, requires 86 days to heal; if massage is employed, it requires 61 days; if early mobilization is used, about 50 days.

G. R. Turner[4] reports a case of **fracture of the sternum** occurring in an old man, and due to forced flexion of the head upon the chest. No dyspnea existed, and the patient lived for 14 days and died from another condition than the rupture of the trachea. Calcification of the trachea was the predisposing cause. In this case the backward displacement of the manubrium practically corrected itself. There are at least 3 cases on record in which complete **rupture of the trachea** was recovered from. In Turner's case there was no necessity for immobilizing the head.

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[1] Echo méd. du Nord, Jan. 29, 1899.

[2] Medicine, May, 1899.

[3] Presse méd., Jan. 28, 1899.

[4] Lancet, Nov. 5, 1898.

John B. Roberts[1] writes on the necessity of employing **force** in the treatment of **Colles's fracture** of the radius. He concludes that fracture of the lower end of the radius is one of the most satisfactory of fractures to treat; that the patient has rarely any discomfort after the first 24 hours, and after the first week there is rarely stiffness of the fingers and wrist-joint. The deformity after the completion-treatment is usually so slight as to be unnoticed by the average observer, unless the lower fragment was markedly comminuted. Roberts says that, as a rule, the physician or surgeon who attends one of these cases fails to use sufficient force to correct thoroughly the displacement, and hence does not obtain results as satisfactory as those outlined above. If he does not use sufficient force, he only partially corrects the silver-fork deformity, and the patient will for a long time have neuralgia, pain, edema, and stiffness of the fingers. The force must be sufficient to detach the lower fragment from the upper and drive the lower fragment forward into place, so as to restore the concavity of the palmar surface of the lower end of the radius and make the dorsal surface practically level. Roberts says it would be well, perhaps, if these fractures were set by laying the patient's arm flat on the table, covering the dorsal surface with a folded towel, and striking the back of the wrist with a heavy mallet, for such a proceeding would make the practitioner use sufficient force. In most cases sudden flexion of the wrist, with great pressure on the back of the lower fragment, will nearly always force the piece of bone into place. This proceeding, of course, causes great pain; but anesthesia can be employed if desired. In rare occasions it will be necessary to bend the hand and lower fragment strongly backward, to disentangle the fragments, before making flexion and pressure. Roberts advises us to abandon in treatment the dangerous Bond splint, and to use instead a straight splint on the back of the wrist, a moulded splint on the palmar surface, or a wristlet of adhesive plaster around the lower end of the radius. Of course, force is not necessary in those rare cases in which there is no displacement. [For many years the late R. J. Levis advocated the following method of reduction in these fractures: Hyperextension, longitudinal traction, and forced flexion.]

Gwilym G. Davis[2] writes on **fractures** of the **internal condyle of the humerus,** and the **correction** of the **resultant deformity** by operative measures. The deformity which is apt to result after such a fracture was named by Allis the **gunstock deformity,** and is usually due to a failure of the surgeon to recognize and prevent the displacement of the fragment upward during the first few weeks of treatment. Right-angled splints are conducive to overlooking the deformity, because the deformity is only visible when the arm is extended. If right-angled splints are employed, at each change of dressings the arm should be sufficiently extended to be sure that no deformity is recurring. To guard against this deformity Allis suggested treatment in the extended position; but the completely extended position is so inconvenient and unsuitable for patients who are walking about, that Davis uses a splint with an obtuse angle, the tendency to angularity being overcome by placing a pad over the external condyle, using an additional external lateral splint, these splints being fastened in place by bands of adhesive plaster, which prevent the splint from rotating. The elbow is thus pushed toward the ulnar side, while the bones of the forearm and arm are drawn outward. In some cases, however, even the straight splint is not efficacious in preventing this deformity. It is sometimes asserted that the gunstock deformity does not produce real disability; but it is self-evident that an arm so deformed is unable to perform certain acts as well as the straight arm. The deformity, if it arises, can be improved by a comparatively safe operation. The operation is osteotomy; and as the joint is not involved in the operation, limitation of the movements of the elbow is not apt to occur. Davis has operated 3 times, with excellent results. Division of the bone was made on the inside, so that the external fibers and periosteum were not disturbed, but remained intact, and displacement of the fragment was therefore prevented. If the external side is divided by the osteotome, the inner side is fractured in straightening, and the bone is detached in almost its entire circumference. The technic of this operation is as follows: An incision 1 in. in length is made extending upward from 1 cm. above the tip of the internal condyle; the bone is reached by deep dissection, the edges of the wound are retracted, an osteotome is inserted, and the bone is partially but not completely divided. The uncut portion of bone is bent or fractured so as to bring the arm into the desired position. The wound is sutured with catgut and dressed. The arm, while in an extended position, is enveloped in a plaster-of-Paris bandage from the finger to the axilla, and it is held in proper position until the plaster sets. This dressing is removed 6 weeks after the operation, and the mobility of the joint is restored in a couple of weeks by massage and passive motion.

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[1] Phila. Med. Jour., May 13, 1899.

[2] Ann. of Surg., Jan., 1899.

John B. Roberts[1] advocates treating certain cases of condyloid fractures of the humerus by subcutaneous nailing; in others he makes exploratory incision. His conclusions are as follows: 1. Ankylosis, which not uncommonly follows condyloid fractures, is usually due to imperfect reduction or incomplete restitution of relations. 2. It is desirable to conserve the normal angle between the axes of the humerus and ulna. 3. In an especially troublesome case we can obtain fixation by nailing the fragments together with long nails driven through the skin. 4. If we take a skiagraph, we can determine the point at which the nails should be introduced and the direction in which they should be driven. 5. In very severe fractures or in very obscure cases an exploratory incision may be necessary to determine the condition, replace the fragments, and prevent ankylosis. 6. The best spot for this exploratory incision is the groove between the biceps and the supinator longus. 7. The extended position of the elbow is less likely than is right-angled flexion of the joint to be followed by impairment of the normal humero-ulnar angle, which gives the carrying function to the upper extremity; hence ordinary condyloid fractures should be treated in the extended position. 8. The adoption of the above measures will usually lead to a good result. 9. If a fracture of the condyle unites with deformity or is followed by ankylosis it may be advisable to perform osteotomy with or without nailing.

J. Hutchinson, Jr., and Harold L. Barnard[2] describe a new method of **reduction in separation of the lower epiphysis of the femur.**

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[1] Phila. Med. Jour., Sept. 24, 1898.

[2] Lancet, May 13, 1899.

They discuss the general subject of the injury, and then report the case of a boy, 8 years of age, who suffered from it. This patient died, and the report shows that the lower femoral epiphysis was torn off by overextension of the knee-joint, was carried forward with the tibia by the pull of the crucial ligaments, while the end of the diaphysis was displaced backward to the outer side of the popliteal space, where it was dangerously near to the muscles and nerves. In fact, in this case the popliteal artery and vein were torn across. If such a condition is unreduced, the projecting end of the diaphysis prevents flexion beyond a right angle, and frequently the forward inclination of the articular end of the epiphysis permits of overextension. The epiphysis is seen to be tilted forward, a displacement which may be caused partly by the pressure of the end of the diaphysis on its posterior edge, and partly by the tension of the gastrocnemius muscle. This specimen shows how the epiphysis is torn off. Hyperextension of the knee is effected by the tension of the posterior, the lateral, and part of the crucial ligaments. Fracture of the epiphyseal line from hyperextension is to a great extent prevented by the posterior and lateral portions of the thick cuff of periosteum which surrounds the cartilaginous disk and unites it to the diaphysis. In this case the periosteum was stripped from the anterior surface of the femur. Some have maintained that in such cases the end of the diaphysis perforates the posterior part of the periosteum, which, like a cuff, is stripped from between its surfaces, and the protrusion of the diaphysis through a slit in the periosteum was supposed to be the difficulty which antagonized complete reduction. But it is clear from this specimen that the tension of attached periosteum on the anterior surface only could not resist replacement. The difficulty of reduction met with in trying to replace the epiphysis by direct pressure while traction is being made on the length of the limb is explained by this specimen. The stripped-up periosteum is attached to the anterior edge of the epiphysis; the posterior, lateral, and crucial ligaments, with the two heads of the gastrocnemius, are attached to the posterior half of the epiphysis and behind its axis of rotation. After the epiphysis is torn off, if traction is made in the line of the limb, the epiphysis, being attached by periosteum in front and pulled on by ligaments and muscles behind, will rotate on its axis so as to turn its articular surfaces directly forward, and in this position no amount of direct pressure will replace the epiphysis upon the end of the diaphysis. It is clear that if the direction of traction is gradually inclined backward until the pull is finally at right angles to the axis of the shaft of the femur, the epiphysis will be drawn across the fractured surface of the diaphysis by the pull of the ligaments attached to its posterior half until the band of periosteum on the anterior edge checks the backward movement by

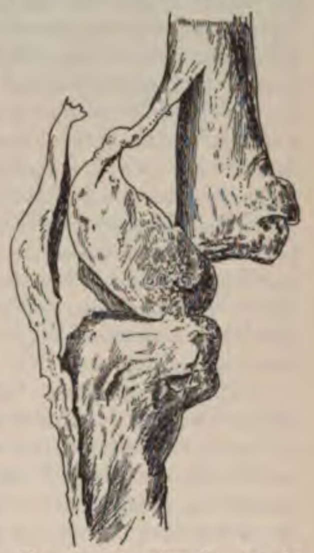

FIG. 31.—Dissection showing the tilting of the epiphysis and the strong periosteal band in front connecting it with the diaphysis (Lancet, May 13, 1899).

coming in contact with the anterior surface of the femur. This is our method of reduction. It causes the epiphysis to retrace its steps backward; to apply the separated periosteum to the anterior surface of the femur; to withdraw the end of the diaphysis from the popliteal space, and so to fix the limb that displacement cannot recur. In order to carry this out the patient must be completely anesthetized. An assistant makes strong, steady traction upon the tibia, in the line of the limb, to overcome the upward pull of the quadriceps and to bring the epiphysis down to the line of the separation. The surgeon then clasps his hands beneath the lower part of the thigh and draws it steadily upward, gradually completely flexing the knee and the hip-joint, while the assistant still keeps up the traction on the leg. A bandage is then applied round the thigh and ankle, fixing the knee at an angle of about 60 degrees. Complete flexion of the heel on the buttock is not necessary; a wider angle is more comfortable. The limb is placed on its outer side on a pillow, and an ice-bag is placed on the front of the knee to limit effusion. This position should be maintained for a fortnight. When such a deformity is once reduced, it has but slight tendency to recur. After 14 days the patient can be given nitrous oxid, and the limb can be extended and put up in plaster in a position 30° short of the straight line, and the patient can go about on crutches.

Patrick J. Timmins[1] describes a **splint for fracture of the femur in an infant.** After the child has been carefully washed, and rubbed all over with alcohol, the surgeon takes a sheet of fairly stiff tin a little wider than the child's body. This is wide enough to permit of being turned up about 1 in. at the sides, and long enough to extend from the shoulders to the heels. A piece is cut out of the tin from opposite the coccyx to the heels, so as to leave a strip for each leg. The splint is padded with sheet wool, and the padding is dusted with boric acid. Two broad strips of adhesive bandage are used to secure the wide part of the body, one strip being put about the chest and another about the pelvis. The strip of splint which is to fix the broken leg is flexed with the thigh and bent back at the knee, leaving the femoral portion long enough to serve for a fulcrum by which the separated bone may be extended into place. Counterextension is secured by the already fixed pelvis. The femur and leg are strapped to the splint. The sound leg is fixed in the same way, and both body and legs are bandaged as far as the feet. The patient is now, practically speaking firmly fixed in a chair, and can be carried about or laid down with security. The fracture may be left undisturbed for several weeks.

R. Hamilton Russell[2] reports a case of **fracture of the neck of the femur in a child.** He says this injury has been overlooked to a great extent in the past, and attention has been recently called to it by Royal Whitman, who says that the accident is by no means so rare as has been thought, for he has seen 2 cases. Whitman says that in such a case one is apt to make a diagnosis of hip-joint disease. If such a mistake is made, the child is usually put into a Thomas splint, which affords considerable relief; and after a few months the limb will be found to have largely regained its utility and the surgeon will believe that he has cured hip-joint disease. It is true there will be some shortening and adduction; but on the whole the surgeon congratulates himself on having got rid of the trouble without abscess-formation. Unfortunately, this is not the end of the affair. Whitman's 10 cases show that when a few months have elapsed since injury, the shortening steadily increases, and goes on increasing as the years pass. Whitman thinks that this progressive shortening is due to yielding of the limb during repair, because of too early use. He believes that the most potent factor in general is the altered position of the upper fragment containing the growing epiphysis, and the consequent elongation of the upper fragment in a faulty direction. In fact, we are confronted with 2 distinct and separate agencies at work bringing about progressive disability during the whole period of growth: First, the absolute loss of length owing to the inability of the growing epiphysis to add to the length of the limb; and second, the added apparent shortening due to increasing adduction of the limb caused by lengthening of the neck in a horizontal direction. An adult, after fracture of the neck of the femur, is not threatened by any of these progressive evils. It is vitally important to recognize such an injury in a child, and we should carefully use a tape-measure in studying all doubtful cases. The treatment of such a case is obvious: it is to open out the angle formed by the neck with the shaft, thus restoring the obliquity of the neck. The surgeon must firmly fix the trochanter with 1 hand. The other hand abducts the thigh, and an apparatus fixes the limb in this position. Shall we do this immediately after the injury? The author prefers to permit 3 weeks to elapse first, so that soft union will become established between the fragments in their faulty position. He fears that if the correction is attempted at once, it may fail to draw the neck downward, and may produce a most undesirable separation of the fractured surfaces and possible nonunion. In older cases, where union is firm and progressive shortening is going on, it would seem that the evil could be remedied by osteotomy either of the femoral neck or of the shaft just below the trochanter, abduction of the limb being the object aimed at in either case.

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[1] Med. Rec., Sept. 24, 1898.

[2] Lancet, July 16, 1898.

Sir William Stokes[1] makes some remarks on the **treatment of fracture of the patella** by the open method and suture. He reports the fifth case of the kind he has treated by the open method. He does not now use silver wire. In the cases in which he used it, it did not become encapsulated and quiescent, but caused irritation and had to be removed. He now employs sterilized strong silk. He does not approve of Barker's subcutaneous wiring, as he believes that the permanent presence of a foreign body in the knee-joint must be a continual source of peril, and he does not think that the central cicatrix which follows the open operation causes any inconvenience to the patient. He has come to the conclusion that the open operation should be adopted in all cases of fractured patella, recent or old, unless there is some distinct contraindication. None of the methods of subcutaneous suture permits us to clear the joint of blood-clots; and as in most instances of fracture, a periosteal curtain intervenes between the fragments, if we employ subcutaneous suturing we cannot remove this curtain. And, again, punctured wounds of deep structures of the joint carry with them certain dangers. A vertical incision is just as good as the flap-method. Stokes does not think there is much danger of splitting the fragments during drilling, if the drilling is properly carried out with a suitable instrument. He will in future do the drilling by means of an electric motor. He thinks that the circumferential patellar pressure may interfere with the nutrition of the bone, for we know that the external circumferential pressure of Lonsdale's apparatus may act injuriously in this manner.

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[1] Brit. Med. Jour., Dec. 3, 1898.

Louis A. Stimson[1] discusses the **treatment of fracture of the patella.** He says that the injury does not endanger life, and its treatment by methods that involve no risk to life gives a large measure of success when these methods are properly employed. Resort to a method which involves risk to life, or such disability as is produced by ankylosis, is only justifiable when the risk is very small or when the conditions are such that the functional result obtained by another method would probably be much inferior to that commonly obtained, and he says the surgeon must choose between the operative and the nonoperative methods. Experience has shown that nonoperative methods, in the great majority of instances, give a good functional result, even if the union of fragments is not close; and most of the failures appear to be due to unfitness of the selected method or its faulty use. In only a small proportion of cases are the conditions such as to make a bad result inevitable without operation, and most of the later causes of limitation of function are equally active after either method. And, again, operation exposes to infection, and if infection occurs, we are almost certain to have a stiff joint, amputation, or death. It, of course, takes less time and makes a good result more certain; but some of its failures are far more disastrous than those which follow on nonoperative methods. If there were no risk in the open operation, it would deserve selection in almost every case, because it makes possible the removal of certain causes of failure which may be present, and which cannot otherwise be recognized and removed. For instance, the interposition of bundles of fascia. The propriety of a resort to operation turns, therefore, in the absence of special reasons, upon the measure of safety with which it can be done; and while Stimson believes that certain methods, when surrounded with every protection, can be employed with an assurance of success which justifies resort to them, and while he habitually uses them, he never teaches them as proper routine practice, but strongly advises against their use except by those who have had experience in operating, who have formed the habit of taking surgical precautions, and who have the aid of trained assistants. He has operated in more than 70 cases without an accident. In 40 cases he has used the subcutaneous sutures of silk through the tendon and the ligamentum patellæ; and in 70 cases open incision, with the same suture or the fibro-periosteal suture. He has abandoned the subcutaneous suture for the single incision, because he found that the extravasated blood, when the subcutaneous suture is used, often escapes freely through some of the 4 smaller incisions, and consequently the suture lies freely within the area of the fracture and laceration. He makes a median incision slightly overlapping both fragments; the edges are retracted; the fragments are lifted and freed from the clot or fringe of fascia, and the joint is washed out with hot salt solution. The fragments are drawn together, the fringe adjusted, 2 or 3 catgut sutures placed in the periosteum along the edge of the fracture, or a single stout catgut suture passed through the tendon and the ligamentum patellæ so that its 2 strands lie on the front of the bone. Sometimes additional sutures are placed in the rents in the lateral expansions. The incision is closed without drainage. The limb is placed on a posterior splint, and the patient is kept in bed with the foot elevated for a week. The superficial suture is then removed and a light plaster-of-Paris dressing applied. In a few days he leaves the hospital on crutches, and after a month the dressing is cut down in front and he wears it only in the daytime. At the end of the third month, it is usually possible to flex the joint to at least 90 degrees, and the patient usually discards the splint entirely before that time.

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[1] Ann. of Surg., Aug., 1898.

Powers[1] writes upon interference in recent **simple fractures of the patella.** In order to aid him to reach a conclusion, he collected the views of 71 surgeons, of whom 17 deliberately oppose operation; 9 urge it in all cases when it can be done by a competent man amid proper surroundings; 41 advise it in selected cases; and 4 still use Malgaigne's hooks; 70% favor operation in some cases, at least. After making a careful study, Powers maintains that **operation** has a distinct place in modern surgery, although it should only be done by skilful surgeons and upon healthy individuals of suitable age; that both its advantages and its dangers should be explained to the patient, and it should only be employed in fractures in which the separation is over ½ in., or in which there is considerable laceration of the capsule; and that when this method is employed massage should be used early and the joint early mobilized.

Heather Bigg[2] describes the apparatus which he employs in **fracture of the patella:** "Now, if the essentials of treatment be put into sequence, they will be found to run as follow: 1, to approximate the fractured segments as completely as possible; 2, to maintain them in undisturbed apposition, so that new material may be easily and reposedly laid down; 3, to submit this new material, when formed, to graduated strain in such a way as to provoke it to the greatest strength; 4, to renew passively and gradually the movements of the knee-joint from complete extension to complete flexion; and 5, to restore the extensor muscles of the thigh to active power and nutrition after their enforced atrophic quiescence. The way in which I have found all these essential conditions most perfectly satisfied is by an apparatus having the construction shown in the accompanying illustration. It consists of 2 lateral rods extending along each side of the leg; these are jointed at the knee and connected by 4 metal bands, 2 encircling the thigh and 2

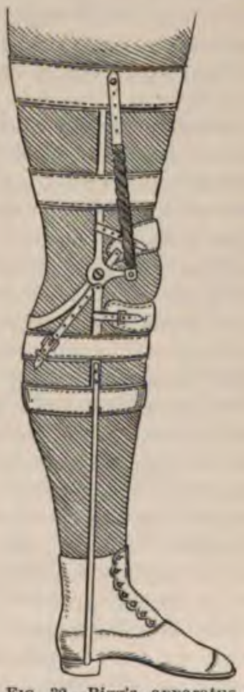

FIG. 32.—Bigg's apparatus for fracture of the patella (Lancet, Aug. 20, 1898).

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[1] Ann. of Surg., July, 1898.

[2] Lancet, Aug. 20, 1898.

the calf. A continuation of the rod on the outer side of the leg reaches to the sole of the foot, where it fits into a socket in a bed-shoe if the patient is still recumbent, or a boot when the patient has started walking; this accessory rod is simply to localize the whole apparatus in a precise and fixed position on the leg. The rest of the special mechanism is at the knee. In the first place, the joints of the lateral rods are 'locked joints'; that is to say, they are made fixed and incapable of any movement at all when the instrument is first put on the extended and quiescent leg; but the lock is so arranged that it can by filing be cut away at will, and flexion thereby be gradually introduced, until at last a complete right angle is reached. Next, there are at the joints of the rods short levers, to which are attached elastic 'mock-muscles,' with an extensor power fully equivalent to that of the quadriceps. Lastly, there are 2 semilunar pads for holding the segments of the patella. The lower pad is fastened to the lateral rods by transverse straps, its object being simply to hold the lower segment steady. The upper pad has 2 sets of straps, one set acting transversely, so as to bring the pad directly home over its segment, and the other set acting obliquely downward in such a direction as to bring the upper segment into apposition with the lower one. The application of the apparatus is as follows: At the outset, while the patient is still in bed, it is applied in perfect and rigid extension, and while the lower segment is steadied by its semilunar pad, the upper segment is readily and without difficulty brought down and retained in proper apposition by its semilunar pad. When the new tissue of juncture between the segments is estimated (generally in about 6 weeks) to be sufficiently formed and to be capable of some incipient strain, then the patient begins to walk with a stick, the instrument remaining rigid for a further week or so. Then the 'locked joint' at the knee is released by amounts of about 5 degrees at a time, every few days, until the complete right angle of flexion is attained. All this while the extensor 'mock muscles' are kept at their fullest tension, their object being to relieve the quadriceps of any work whatever. In every-day walking with the knee-joint mobile, it is the quadriceps that flings the leg forward; the 'mock muscles' of the apparatus do the same thing artificially, and the quadriceps, consequently, has no need to come into action at all, and therefore does not pull on the upper fragments of the patella, which is thus left undisturbed to follow its lower segment in apposition. When, however, flexion has been permitted to reach the right angle, then the 'mock muscles' are loosened little by little, and the quadriceps gradually begins to pull on the mended patella until it is allowed to do so in its full strength. Finally, the lower semilunar pad is removed, while the upper one is slightly loosened, but is left as a necessary safeguard for a few weeks longer, after which the whole apparatus can be discarded. The feature of this particular treatment is that not only are the segments safely held in apposition, but the reunited bone is submitted by controllable graduations to movement and to strain, and the new tissue of union is thereby provoked into attaining perfect strength, for all tissues strengthen under graduated provocation."

Edmund Andrews[1] reports a series of interesting cases to demonstrate the **deformities** that occur after bony union of fractures from **re-**

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[1] Clinical Rev., June, 1899.

softening of the callus or from **slow bending** without perceptible softening. He says that malpractice suits are occasionally based on deformities which occur after the patient has been discharged with a limb apparently solidly united in good position. These cases are rare; but the fact that they are rare makes a defence difficult before a court, because jurors have never heard of them, and think the surgeon's account incredible. There are 2 classes of cases: 1. When from causes partly known and partly unknown the callus which was apparently firm and unyielding is dissolved (as Packard calls it); in other words, is resoftened and allows a free movement of the fragments. 2. When the union becomes firm and remains immovable, so far as manipulation can gauge it, yet there is slow yielding to the tension of the muscles and to the weight of the body in walking, and after weeks or months decided deformity develops. In some cases not only does the callus yield, but the shaft of the original bone bends. The author then reports several cases to illustrate the first class of cases. He says the second class of such deformities arising from slow, imperceptible union of bony callus is almost entirely overlooked in surgical literature, and he reports several cases of this condition. These results show that it is necessary to keep fracture cases under observation longer than is usually done, and after they are discharged from close supervision they should be informed of the necessity of inspection once or twice a month for a considerable period.

DISLOCATIONS AND DISEASES OF THE JOINTS.

Collier[1] reports 2 cases in which dislocation of the hip-joint followed scarlatina. In 1 case pus formed in the neighborhood of the hip-joint. There was no evidence of bone-disease, but a dislocation took place upon the dorsum of the ilium. The other patient fell out of bed on to the floor on the fifteenth day of scarlatina. A week later a sciatic dislocation was recognized. Collier believes that **infectious maladies** tend to cause degeneration and softening of the ligaments and their bony insertions. [Most reported cases of dislocation occurring during fevers have been in typhoid fever and acute rheumatism.]

Noty[2] reports a case of **backward dislocation** of the **thumb,** which could not be reduced by mechanical methods, but which was finally reduced by the following plan: The hand was flexed and forcibly pronated. The surgeon's two forefingers were placed beneath the head of the metacarpus, and his thumbs were applied to the dorsal surface of the base of the phalanx. Pressure was thus made in opposite directions, and on raising the thumb almost to a right angle the dislocation was reduced. [In a dislocation of the thumb, if reduction cannot be effected by ordinary means, an operation should be performed. One plan is to expose and replace the long flexor tendon. Another plan is to divide this tendon above the wrist or in the region of the luxation.[3]]

Francke[4] makes a report upon the pathologic state of 18 cases of **habitual dislocation** of the shoulder-joint. The most common condition was **hydrops;** bony separation was far more rarely met with.

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[1] Brit. Med. Jour., Oct. 15, 1898.

[2] Rev. méd., Jan. 4, 1899.

[3] See Vitrac, on "Dorsal Dislocations of the Thumb," in Rev. de Chir., July, 1898.

[4] Med. News, Dec. 31, 1898; from Deutsch. Zeit. f. Chir., vol. xlviii., p. 399.

The frequency of the various lesions is shown in the following list: Dilatation of capsule, 16 cases; communication with subscapular bussa, 1; rupture of capsule along glenoid fossa, 3; rupture of deltoid along glenoid fossa, 1; rupture of deltoid with fracture of greater tuberosity, 1; defects in head of humerus, 12; defects in glenoid cavity, 9; foreign bodies in joint, 5; foreign bodies with hydrops, 2. "In 15 of the cases reported, operation was performed as follows: Resection of the head of the humerus, 9 times; opening of the capsule, which was subsequently sutured or drained, 5 times; and infolding of the capsule without opening, once. Resection of the head of the bone prevented future dislocation, but often affected the mobility of the joint, and is therefore to be avoided. A better treatment consists in exposing the capsule and then taking a tuck in it, or opening it and resecting a portion of it, or removing from the joint any foreign body together with suture of any muscle that has been torn from its attachment. The joint should be kept quiet for at least 2 weeks, with drainage or tamponade, in order to secure the utmost possible retraction of the soft parts."

Hoffa[1] discusses the treatment of **congenital dislocation** of the hip. He says cure can be obtained. His operation consists in exposing the head of the femur, making a new cotyloid cavity, and putting the displaced head into the new cavity. "The steps of this operation are a vertical incision of the skin and soft parts along the anterior border of the great trochanter; free incision of the capsule and exposure of the displaced head of the femur; enlargement, by the use of the sharp spoon, of the rudimentary cotyloid cavity, so that it is made deep and wide enough to receive the head of the femur; replacement of the head of the femur into the enlarged cotyloid cavity, a step in the operation which, in many patients, and especially in those above the age of childhood, is attended with much difficulty, often necessitating forcible extension of the limb, and occasionally tenotomy of the adductors. Great importance is attached to the after-treatment, the details of which are fully described. Hoffa has performed this operation in 200 cases, in 6 of which death was a direct result of the treatment. While advocating his own method, he acknowledges that it cannot restore all the conditions of a sound and normal joint. Shortening of the limb persists, and a complete range of movements cannot be attained. The condition of the limb with regard to form, disposition, and functional capacity resembles that met with in coxa vara. The advantages to be derived from a successful operation are lengthening of the limb, diminished laxity and mobility of the head of the femur, and improved position and increased activity of the gluteal muscles. The younger the patient the better, Hoffa holds, are the prospects of success from this operation. The best time for its performance is from the third to the eighth year of life. It is contraindicated in subjects beyond the age of 10, in whom, in cases of bilateral dislocation, Hoffa would remove both femoral heads."

Charles A. Sturrock[2] employs the following method for **reducing dislocations** of the hip: "The patient being laid upon his back on the floor, is put under the influence of an anesthetic. The surgeon, as shown in the illustrations, kneels upon his left knee when the left hip is dislocated, and at the left side of the patient. The patient's thigh is then carefully flexed to a right angle, and while this is being done the leg is also flexed to a right angle and laid with the most prominent part of the calf on the right knee of the surgeon. The ankle is then firmly grasped with the left hand, and the condyles of the femur with the right. The thigh is then abducted for thyroid dislocations, adducted for dorsal and pubic, and rotated in for all, by drawing the foot away from the middle line and keeping the knee steady. Traction is now made by steadily depressing the ankle, the surgeon using his knee as a fulcrum; the patient's leg makes a most powerful lever, and the pelvis can be easily raised off the ground if necessary, the weight of the body acting as a

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[1] Brit. Med. Jour., Feb. 25, 1899.

[2] Ibid., Apr. 8, 1899.

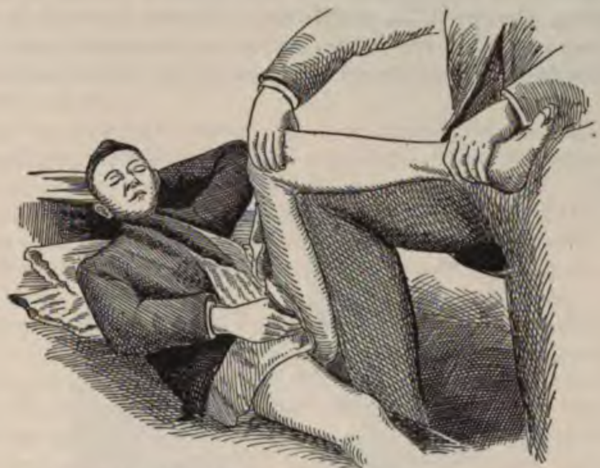

FIG. 33.—Adduction and rotation in (Brit. Med. Jour., Apr. 8, 1899).

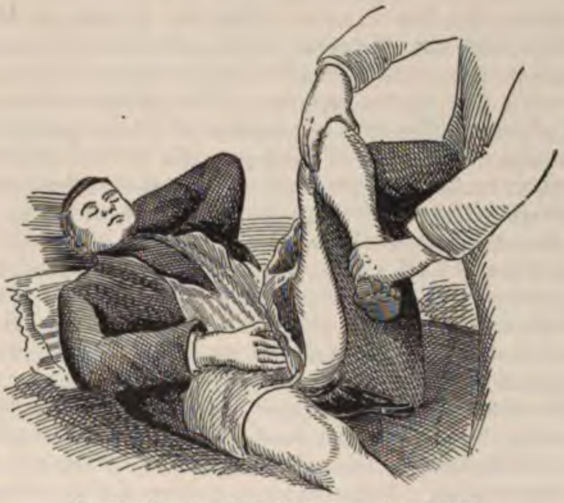

FIG. 34.—Traction (Brit. Med. Jour., Apr. 8, 1899).

countertraction; finally the thigh is rotated out, and while this is being done the head of the femur slips into the acetabulum."

Joel E. Goldthwait[1] writes on permanent dislocation of the patella, and reports a case of 20 years' duration successfully treated by **transplantation of the patella tendons** with the tubercle of the tibia. The following operation was performed upon the right knee: Through an 8-in. incision, beginning above the knee on the outside and extending downward across the knee to the inside, the capsule of the joint was exposed. Even with the skin removed the patella could not be brought into its normal position, and a longitudinal incision 3 in. long was made through the outer part of the capsule. After this the dislocation could be corrected without difficulty; but because of the change that had taken place in the shape of the ends of the bones, the tubercle of the tibia was so much farther to the outside than normal that, when the joint was flexed, the patella slipped out of place again. In order to obviate this and to have the attachment of the patellar tendon in the proper place, it was cut off and sewed to the periosteum and expanded tendon of the sartorius on the inner and anterior surfaces of the tibia. Because of the twist that had taken place in the whole upper part of the tibia, this sartorius attachment, instead of being on the side, was well in front. The loose capsule on the inner side of the joint was next shortened with quilted sutures, and for fear lest the strong thigh-muscles should tear away the new attachment of the patellar tendon before it became firm, about three-fourths of the quadriceps extensor was divided just above the patella. The wound was then tightly closed, the skin being depended upon to close the gap (¾ in. broad) in the outer part of the joint-capsule made necessary to draw the patella forward. This recovery was uneventful. A leather knee-splint was worn during part of the time for several months. The difficulty in complete extension of the knee remained. An osteotomy of the femur above the condyles was per-

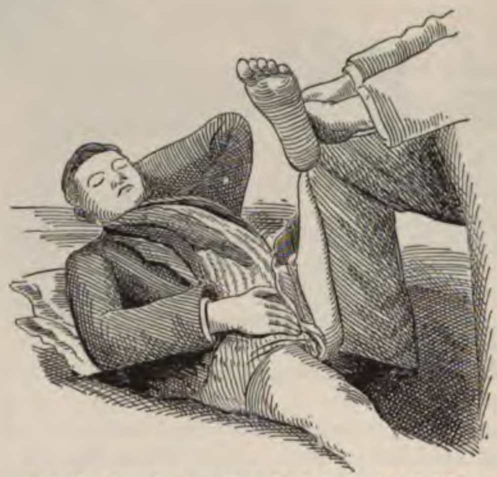

FIG. 35.—Rotation out (Brit. Med. Jour., Apr. 8, 1899).

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[1] Ann. of Surg., Jan., 1899.

formed on both legs and the limbs were straightened, and 8 weeks after the osteotomy the left knee was operated upon. The operation was similar to that performed on the right knee, except that instead of cutting the patellar tendon and reattaching it, the tubercle of the tibia was chiselled off and nailed to a depression made in the inner side of the bone. The functional condition was greatly improved, but not to the degree which occurred in the other leg. Complete extension is possible, and there is 70 degrees of flexion.

Shaffer[1] considers the cause and mechanical treatment of subluxation of the semilunar cartilages of the knee-joint. The derangement may be so slight as to show no physical signs, or may be marked. This subluxation is most likely to occur when the leg is rotated while the knee is flexed, the rotation being delayed or hindered by some cause which also impedes flexion. If the quadriceps extensor is relaxed, this subluxation does not occur, except perhaps from violent traumatism. To prevent recurrence of the subluxation, it is necessary to antagonize the ligamentous weakness of the joint and prevent abnormal rotation of the tibia. Thus the quadriceps and ligamentum patellæ are relieved of excessive strain. When so treated the ligamentum patellæ and crucial ligaments may shorten materially in the course of a few months. The object is to make the knee temporarily into a pure hinge-joint. Shaffer's apparatus limits joint-movements to flexion and extension, and stops extension at the point of comfort to the patient, and thus prevents ligamentous strain. The center of the knee-pad must be opposite the true center of motion (opposite the most prominent part of the internal condyle), and must rest smoothly on the condyle without undue pressure.

John B. Walker[2] discusses **dislocation of the semilunar cartilage.** He considers treatment as either operative or nonoperative: "Occasionally one may be able to see the patient for the first time shortly after the accident has occurred. After the preliminary examination an attempt should be made to replace the dislocated cartilage, and this may be accomplished by flexing the leg as much as possible on the thigh, then rotating the tibia inward if it is the internal cartilage, or outward if it is the external cartilage that has been displaced, and next extending the leg quickly upon the thigh while pressing with the thumb where the cartilage is supposed to be out of place. A firm bandage is then carefully applied and a pad adjusted over the displaced part. The patient is confined to bed and an ice-cap placed over the knee. On the following day massage is begun and continued daily. As a precautionary measure, it is suggested that the patient walk with the toes turned inward when there has been trouble with the internal cartilage, and with them turned outward when the trouble has been with the external cartilage. Shaffer has published reports of several interesting cases, perhaps of a little severer type, in which he has succeeded very well by the use of his so-called Campbell knee-apparatus. Thus, it may be said that with both massage and the apparatus patients who suffer from the milder types may go about their business in comfort without an operation. In the majority of cases these methods will not succeed, and it will become necessary to open the joint. Walker believes that under suitable conditions this can be done without much danger. In regard to the operation, 2 incisions may be considered: First (Barker's method), with the leg extended, a curved incision is made from the inner border of the ligament of the patella to the anterior edge of the lateral ligament. The ends of the incision in all cases correspond to a line a little above the line of the head of the tibia. The convexity of the flap reaches down about 1 in. on the head of the latter. The periosteum is raised with the flap which contains the capsule besides, but the fibers are left intact in their relation to the periosteum. This is necessary for the subsequent strength of the joint. When this flap is raised the cartilaginous rim of the articular facet is generally to be seen divested of its covering of semilunar cartilage, which sometimes may be seen separated; at other times it is twisted or curved up, its end being drawn to the interior of the joint. This incision certainly easily exposes the entire line of the articulation. It has, however, the disadvantage of cutting the capsule transversely and thus weakening it, so that some operators prefer to make a vertical incision, as recommended by Allingham and MacCormac. This should be 3 to 4 in. in length in the long axis of the leg, and ¾ in. or so internal to the patella, its center corresponding to the line of the joint. In regard to the position of the limb, there is more room in the flexed position, though either that or the extended one may be adopted. If possible, the limb should be maintained throughout in one position, to prevent blood getting into the cavity. The structures from the skin to the synovial membrane should be divided in turn until the division of the capsule exposes the synovial membrane clearly at the bottom of the wound. All the superficial structures should be divided throughout the whole length of the wound, and only after all bleeding points have been secured should the synovial membrane be opened. The cartilage may now come into view. One may proceed now in 1 of 2 ways: either suture or excise and remove the cartilage. In mild cases the cartilage may simply be separated from its attachment to the head of the tibia, but it still may remain attached by its two extremities. In such cases Barker has been very successful by his method of suture. Two or more sutures of silk are passed through the fibrous investment covering the tuberosity of the tibia, then through the cartilage, and tied. Silk should be preferred to gut, as it is more reliable. If the cartilage is fully separated from either its anterior or posterior attachments, the coronary ligament torn through, and the cartilage curled up, it is better to excise it. When the knee is in a flexed position this is almost always the case."

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[1] Ann. of Surg., Oct., 1898.

[2] Med. News, Jan. 14, 1899.

John O'Conor[1] maintains that **arthrotomy** and free incisions are a specific cure for **acute articular rheumatism.** Rheumatism is an infective disease, caused by germs (or germ-products) which enter the body through the tonsil or some other open door. The author reports a series of interesting cases in which he opened the diseased joints, evacuated the contained fluid, irrigated, and in some cases drained. The patients were rapidly cured.

Henle[2] makes a report on the treatment of **tuberculous joints** and cold abscesses in the clinic of Mikulicz. In this clinic conservative treatment is employed for joint-tuberculosis, except in the case of the knee-joint, which is usually resected. In joints except the hip treatment is begun by correcting any abnormal position, putting the joint at rest, and employing Bier's method for obtaining congestive hyperemia. In 1 to 2 weeks the pain is usually much diminished and iodoform injections are begun. In an adult 15 to 30 cc. of 10% iodoform-glycerin emulsion are injected at a time; but in a child 6 to 10 cc. are used. Cold abscesses are aspirated, and injected with iodoform emulsion. Injections are repeated at intervals, the number of injections depending on the severity of the condition. In a joint an injection is rarely repeated before 4 to 8 weeks. Careful attention must be paid to the patient's health. Bier's method is continued for many hours a day during the iodoform treatment, except for 2 or 3 days after each injection, and is kept up for several months after apparent cure. If in spite of the use of iodoform and the employment of Bier's method the patient is not cured or grows worse, operation is indicated.

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[1] Ann. of Surg., Apr., 1899.

[2] Beiträge z. klin. Chir., Band xx., Hefte 2 u. 3.

Lübbe[1] believes that puncture should be carried out in every case of marked **hemarthrosis,** because a bloody effusion, if allowed to remain, may destroy the joint. Thirty-two cases so treated remained in the hospital an average of 22 days each; 22 cases treated without puncture remained an average of 34 days each.

Archibald W. Cuff[2] reports a successful **operation for sacro-iliac disease.** He performed the operation of Golding-Bird and Collier. A semilunar flap was raised in a forward direction. This flap contained skin, fascia, muscles, and the posterior sacro-iliac ligament. An abscess-cavity was exposed, which cavity communicated with the joint. The joint was trephined, and was found to contain bone-fragments, pus, and granulation-tissue. Curetting was performed and the wound closed. Two weeks later it was necessary to scrape away tubercular nodules along the line of incision. Iodoform was used in the treatment, and a long external splint was applied on the diseased side. A cure resulted. J. J. Buchanan[3] operates for sacro-iliac disease as follows: "1. Locate the joint as follows: (*a*) With the thigh fully extended, draw a line from the posterior superior spinous process of the ilium to the prominence of the great trochanter. (*b*) Fix a point one-fourth of the distance along this line (in the adult about 1½ or 2¾ in.) from the spinous process. (*c*) Pass a drill at this point through the soft parts into the bone. 2. Make a free incision to the muscle along the line marked, with its center at the drill-hole. This incision corresponds with the general direction of the glutei muscles, whose fibers may be separated to the bone without cutting. 3. Having cleared the bone of muscular fibers for a sufficient space around the drill-hole, perforate the bone with a trephine of 1 in. or 1¼ in. in diameter, with its center at the drill-hole. 4. With the rongeur forceps remove enough more of the ilium to expose fully the diseased joint, the sacral portion of which can be cleared with the curet and gouge. 5. Lay open all tuberculous abscess-cavities as fully as the anatomic conditions will permit, and curet and pack them with iodoform gauze. 6. Leave no dead spaces. 7. Suture the soft parts accurately, except at points of exit for the gauze. 8. Observe strict asepsis throughout."

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[1] Deutsch. Zeit. f. Chir., Band 49, Heft 6.

[2] Lancet, Oct., 1898.

[3] Memphis Lancet, Dec., 1898.

VENEREAL DISEASES AND SYPHILIS.

Grâvagna[1] states that in his experience no better results are obtained in treating **gonorrhea** by the new remedies than by the old. He tried alumnol, protargol, argentamin, and argonin. None of these remedies was capable of quickly stopping the disease, and gonococci could be found long after the treatment had been begun. These new drugs do not possess the power so often assigned to their credit.

Colombini[2] considers **protargol** a very useful remedy for **gonorrhea.** He keeps on hand in a colored bottle a 10% solution of the drug in glycerin and water (5 cc. of neutral glycerin stirred up with 10 gm. of protargol, 95 cc. of cold, sterile water, and the mixture shaken). The required strengths of solution are readily prepared from this (to make a 0.25% solution, mix 2.5 cc. of the standard solution with 97.5 cc. of sterile water, etc.). In the acute stage of gonorrhea he uses as an injection the 0.25% solution. The patient micturates, the glans and prepuce are washed with an antiseptic fluid, the protargol is thrown in, and is allowed to run out alongside the nozzle of the syringe, protargol is again injected and retained for 15 minutes, and the patient does not urinate for at least 1 hour. As the acuteness of the attack abates, the strength of the solution used is increased gradually to 2%. The first day 1 injection is given; the second day 2; on the third and following days, 3. The injections are kept up until the patient has been free from discharge for 20 days, and are then gradually withdrawn. When this treatment is employed the gonococci quickly disappear, and the discharge rapidly alters in character and diminishes in amount. The author's patients were cured without the appearance of complications. He holds that protargol cures rapidly and thoroughly and does not irritate the mucous membrane.

George Knowles Swinburne[3] treats acute gonorrhea as follows: A portion of discharge is obtained at every visit, stained, and examined. The patient is directed to hold the urine for at least 3 or 4 hours before coming for treatment. "As briefly as possible the treatment pursued was as follows: The anterior urethra is thoroughly flushed with a hot solution of potassium permanganate (1:4000), the temperature ranging from 110° to 115° F., and in some cases even to 120° F., always flushing it inch by inch by grasping the penis between finger and thumb at each point until the farthest point that can be grasped is reached; then only is the fluid allowed to pass back to the cut-off muscle. If the anterior urethra only is involved, the anterior urethra only is irrigated; then the patient lies on a table, and the urethra is gently filled to distention with a 2% solution of protargol by means of the ordinary urethral syringe (one holding 2 to 3 drams being preferable). The patient grasps the glans as close to the meatus as possible, holding it for about 10 minutes. The meatus is then closed with absorbent cotton and gauze bandage, which are thrown away at the next urination. When a patient is receiving his first irrigation, he must be carefully watched and immediately made to lie down to receive the injection. This is done to avoid as far as possible the faintness which may accompany the first treatment. If the posterior urethra became involved, the treatment differed somewhat in the different cases. Those who readily learn to relax the sphincter, allowing the bladder to fill from the meatus, are generally irrigated in this way, emptying the bladder immediately. If they do not readily learn this, after the anterior injection with the protargol has been made, a soft-rubber catheter, sterilized, No. 12 to 16 F., having the eye near the tip, is lubricated with glycerin or lubrichondrin and gently passed down the urethra to a point just entering the posterior urethra, and ½ oz. of a 2% solution of protargol slowly injected through it, which the patient immediately urinates. In some cases it is important to see that the bladder is empty; then the catheter is passed into the bladder, the urine allowed to flow out, and ½ oz. of the protargol injected into the bladder. Then, as the catheter is gently withdrawn, more of the solution is injected through the catheter during its withdrawal. The passing of the catheter thus into the bladder is only done when it is evident that the patient does not completely empty his bladder, and in certain chronic cases; but as a routine treatment in acute posterior urethritis, it is to be condemned. An important suggestion at this point is that the catheter should not be used while an inflammatory condition of the anterior urethra exists, unless the symptoms in the posterior urethra are of such a degree as to call for immediate treatment; a few days' wait may prove better, as a rule. A valuable aid in **posterior urethritis** and in some severe cases of anterior urethritis, in cases, further, when, on account of a hypospadias, irrigation is difficult, has been found to be a pill or capsule containing 1 or 2 gr. of methylene-blue and 4 gr. of boric acid. A rather serious objection to it is the color of the urine, as it may stain the patient's underwear unless great care is exercised by him. In some cases in which the acute state is advanced and the urethra extensively inflamed, if the patient shrinks from the irrigation, it is omitted the first day or so, the protargol (beginning with 1%) alone being used, and the pill of methylene-blue and boric acid given, warning the patient that it will change the color of his urine. Then, after his confidence has been gained, irrigation is also employed. The stronger solutions of permanganate have generally proved of too great discomfort in the majority of cases in private practice, and even 1 : 4000 is not well borne in the posterior urethra in some few very sensitive cases. In private practice the method of treatment differs somewhat. The patient is examined and a smear taken; he is then irrigated with a full quart of the permanganate while sitting on a folded towel on the edge of a chair, the trousers and drawers are pushed down below the knees, and a clean towel, folded once, is laid over the clothing, between the knees. Another towel is rolled around the left shirt-cuff. The patient is given a pus-basin to hold in the left hand to catch the irrigating-fluid. When the basin is nearly full, he empties it into a jar or wash-basin on his left. The operator sits in front, a little to the patient's right, and grasps the penis with the left hand, holding and manipulating the irrigator with his right hand. Very seldom is there any spattering of fluid. Then, as above described, the patient lies on a table to receive his injection of protargol in 1% or 2% strength, generally the latter. While the patient is holding the injection the slide is stained and examined under the microscope. Some cases have been met with in which it seemed advantageous to cocainize the anterior urethra with a 1% solution before using the protargol, though this is avoided if possible. The protargol in this strength frequently burns, but seldom seems to irritate." It is rarely necessary to use astringents.

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[1] Riforma Med., July 20, 1898.

[2] Epit. Brit. Med. Jour., No. 110, 1899; from Atti della R. Acad. dei Fisiocritici, serie IV., vol. x., 1898.

[3] Jour. Cutan. and Gen.-Urin. Dis., Mar., 1899.

J. A. Abt[1] discusses genito-urinary **gonorrhea in children.** The gonococcus has been found so frequently in the discharges of vulvovaginitis in children, that it is certain that gonorrheal infection plays an important part in causation. Weak and rickety children are not particularly susceptible; in fact, the victims are, as a rule, strong and well-nourished. The perineum and the inner surfaces of the thighs are usually eczematous and covered with dried, greenish-yellow pus. The labia majora stick together. The mucous membrane of the vestibule is red and swollen, and so is the hymen, and considerable pus is observed. In most cases the urethra is involved, and in some cases the ducts of Bartholin's glands. If the perineum is pressed upon, pus will usually exude from the vagina. The inguinal glands may be enlarged, especially if there is eczema or excoriation. There may be slight fever, but, as a rule, the temperature is normal. There may be itching, pain on micturition, or vesical tenesmus. The disease may persist for weeks or even for months. The uterus is never involved. The tubes, ovaries, or peritoneum may be involved. Epidemics of vulvovaginitis have been reported, especially in institutions and among the poor. Infection may take place in a bath from infected bath-water, soap, or towels. The infection may also be conveyed by sponges, bed-linen, unclean fingers, clinical thermometers, or, rarely, by criminal assaults. The vulva and urethra are the parts primarily attacked. The disease is occasionally, though very rarely, seen in the newborn. Remember what Epstein pointed out; that is, a physiologic discharge may come from the genitalia of the newborn, caused by epithelial desquamation. The prognosis in little girls is good, and the disease usually terminates within 3 months. The diagnosis depends upon the microscopic finding, and pus examined should be taken from as high a point as possible in the tract, preferably from the urethral orifice. In a case of simple catarrh few diplococci are found. In gonorrhea large numbers are found within pus-cells. The gonococcus is decolorized by Gram's method. Other diplococci are not. "The treatment consists of cleanliness, antisepsis, and rest to the parts. The vulva should be kept scrupulously clean; in severe cases it should be irrigated 3 or 4 times daily with a saturated boric-acid solution or a solution of 1 : 10,000 mercuric chlorid. Cassel[2] advises that after the preliminary cleansing of the vulva the child be placed in the lithotomy-position, with the pelvis elevated. A soft-rubber catheter, or the tubing of a soft-rubber balloon-syringe is introduced into the vagina, and the same irrigated. He uses 1 : 1000 or 1 : 2000 mercuric chlorid solution. Later, if the condition persists, he uses 1 : 1000 or 1.5 : 1000 silver nitrate solution. The bichlorid irrigation is extensively used, though not in as strong solutions as advised by Cassel; solutions of 1 : 5000 to 1 : 10,000 answering the same purpose. Potassium permanganate or zinc chlorid, in solutions of 1 : 3000, are extensively used. Many other antiseptic solutions

[1] Chicago Med. Recorder, Jan., 1899.

[2] Berlin. klin. Woch., 1893.

are advised. In obstinate cases irrigation with astringent solutions, such as zinc sulphate or tannic acid, may be used. A pad of sterilized cotton well dusted with boric acid and starch may be placed between the labia to prevent the irritation caused by the purulent discharge. Experience teaches that irrigation of the urethra with strong antiseptic solutions, or the introduction into the urethra of bacilli, of iodoform or thallin, or any similar procedure, does not result in permanent good. The administration of salol and boric acid in appropriate doses is recommended for the urethritis." Gonorrheal urethritis in male children presents symptoms similar to those met with in adults. Children in arms may suffer from this condition. The disease is apt to become chronic and last for months. Most cases are due to actual sexual contact, usually with diseased servants or other girls, but some arise from touching with infected hands, linen, etc. Complications may occur (stricture, cystitis, lymphangitis, balanitis, balanoposthitis; epididymitis and orchitis are rare because the organ is functionally inactive). The certain recognition of the specific urethritis can be made only by the microscope. In both sexes gonorrheal rheumatism may occur, but it is never so severe as in adults; there is little or no fever, and ankylosis does not follow.

Antonelli and Scatolari[1] use **irrigations of picric acid** in the treatment of gonorrhea. The irrigation is used 3 times a day; the fluid is filtered, and contains from 2% to 5% of picric acid.

R. Clement Lucas[2] read a paper before the Royal Medical and Chirurgical Society on **gonococcus joint-disease in infants,** secondary to purulent ophthalmia, and discussed 23 collected cases. There are 2 forms of this joint-disease: 1. Very acute arthritis with marked swelling, redness, and tenderness, and in which the appearance suggests impending suppuration. 2. A subacute synovitis, causing marked effusion and some pain on movement, but little or no redness. Of the cases, 18 were **ophthalmia neonatorum.** The remaining 5 were due to secondary inoculation in older children, the oldest being 7 years of age. In the first group of cases the joint-disease, as a rule, appeared at the end of the second or in the third week of the ophthalmia. The knees were especially attacked, but any joint might suffer. The inflammation usually passed away in from 3 to 5 weeks. Examination showed that gonococci produced the ophthalmia and joint-disease. When suppuration occurs, Lucas thinks there may be mixed infection. Two cases of this series suppurated. In 1 of them streptococci and gonococci were found; in the other staphylococci and gonococci.

John Homans[3] reports a case of gonorrheal arthritis of the left knee cured by opening the joint. He evacuated 10 oz. of thin, brownish, seropurulent fluid, wiped out the joint, and irrigated with salt-solution. The wound was drained for 2 days, and the patient discharged cured in 17 days. The disease was clinically diagnosticated as gonorrheal. The patient had a urethral discharge containing diplococci. The fluid evacuated from the knee contained no gonococci and no tubercle-bacilli.

Grineperte[4] treats **soft chancre** as follows: Twice a day bathe the part for over 15 minutes in a 2% solution of creolin at a temperature of from

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[1] Klin.-therap. Woch., Feb. 26, 1899.

[2] Brit. Med. Jour., Jan. 28, 1899.

[3] Boston M. and S. Jour., Dec. 29, 1898.

[4] Rev. de Thérap. méd.-chir., Jan. 13, 1899.

100° to 108° F., wipe the parts, dust with salol, and bandage. In 2 or 3 days the sore ceases to secrete, and at the end of a week cicatrization begins. The average duration of treatment in a series of cases was 11 days.

James Moore[1] discusses the value of **antistreptococcic serum** in the treatment of primary venereal sores and their complications. In 48 cases of acute inflammatory bubo he used this treatment, and suppuration occurred in only 7 cases. He has used the serum in cases of phagedenic chancre. His conclusions are as follows: "1. While recognizing the great importance of early local antiseptic treatment of the chancroid, I believe that if 5 cc. of the serum are injected subcutaneously into each inguinal region in cases in which inflammatory bubo is likely to develop, it will prove a good prophylactic measure, and assist in healing the chancroid. 2. If inflammatory bubo has already developed, and the acute inflammatory symptoms have not been present more than 48 hours, 10 cc. injected into the inguinal region corresponding to the inflamed gland will cause resolution in the majority of cases. 3. If there is evidence of pus-formation, the serum may possibly limit the extension of the suppuration; but in this class of cases my results have been anything but satisfactory. 4. The serum should always be injected into the area drained by the infected gland, preferably the right and left inguinal regions. I have not seen good results from injecting it into remote areas. 5. In phagedenic ulceration complicating venereal sores, this serum would appear not only to neutralize the toxins in the blood, but also to bring about a healthy condition of the ulcer."

M. Campbell Williams[2] reported a case of **chancre of the tongue,** inoculation having been from the mouthpiece of a bagpipe. This bagpipe had been played upon by a syphilitic subject, but had been put away for 2 months, when the owner used it and developed syphilis. This case shows that the virus of syphilis may remain active in a dried state for at least 2 months.

Lindstrom[3] makes a study of the blood-changes caused in syphilitics by **intravenous injection of mercury.** The blood at first improves rapidly, but as the number of injections are increased the improvement is not maintained. Even very minute doses improve the composition of the blood (increase of red corpuscles and hemoglobin and diminution of white corpuscles). These changes can be noticed after 1 injection. If the treatment is suspended, the improvement is rapidly lost. Slow increase of the doses benefits the syphilids as well as the blood. If more than 150 mgm. of perchlorid are given, slight toxic effects appear (diminution of red corpuscles and oxyhemoglobin and increase of white corpuscles). If injections are continued, toxic manifestations become positive (mercurial anemia), which may last long after the injections are stopped. Considerable quantities of weak solution (10 mg. in 10-cc. doses) produce the most satisfactory results.

Michailow[4] studied the effect of **operations on 100 syphilitics.** He finds that syphilis lessens vascular elasticity and blood-coagulability; hence wounds bleed a great deal, especially in the tertiary stage of syphilis. Wounds do not granulate readily; the granulations are either scanty and tend to fatty degeneration or they are edematous. During the slow wound-healing there is a profuse serofibrinous or seropurulent discharge. Even slight pressure causes the edges of a wound to atrophy. Plastic operations often fail in these cases. These noteworthy conditions are first observed in the condylomatous period, and are most noticeable in the gummatous period and in cases which have been treated imperfectly. Wounds in syphilitics should not be flushed with antiseptics, but should be dressed with warm, moist, sterile dressings.

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[1] Brit. Med. Jour., Nov. 26, 1898.

[2] Ibid., Dec. 17, 1898.

[3] Presse méd., No. 42, 1898.

[4] Centralbl. f. Chir., Dec. 17, 1898.

Steward Leroy McCurdy[1] writes on **general arthropathies.** His conclusions are as follows: "1. Many of the cases of acute synovitis of adults are gonorrheal, and should have aspiration, irrigation, and iodoform, or arthrotomy. 2. Many of the cases of epiphysitis of adults are associated with secondary syphilis, and should have mercury protoiodid; and with tertiary syphilis should have potassium iodid; and in neither condition should a knife be used. 3. Many of the cases of hip-joint and Pott's disease, and other bone-diseases of children, are caused by hereditary syphilis, and should be given the iodids. 4. In all cases of so-called bone- and joint-disease potassium iodid should be given, whether a specific history can be obtained or not."

DISEASES OF THE BRAIN AND NERVES.

V. P. Gibney[2] advocates the treatment of **metatarsalgia** by the use of specially constructed boots. He says that if the arch of the foot is broken down, it is necessary to get it into proper position, and it is even more important to maintain the correct position by moulding the sole of the shoe so that it will have an outline identical with that of the sole of the foot. The heel, the arch of the foot, and the ball of the foot must be taken into consideration in making the boot. The upper must fit accurately over the instep and compress evenly the proximal ends of the metatarsal bones. There must be no pressure on the distal ends, and yet the boot must not be wide enough to allow this portion of the foot to extend. The transverse arch is best preserved by having the insoles slightly convex across the metatarso-phalangeal region. If the longitudinal arch is weak, the shank of the shoe must extend down to a point just back of the metatarso-phalangeal articulation, and the sole must be sufficiently thick to prevent the end of the spring cutting into the foot or projecting through the under portion of the sole.

Reuben Peterson[3] writes on peripheral nerve-transplantation, and reports a case in which the sciatic nerves of a dog were successfully transplanted to take the place of a portion of the ulnar and median nerves in a man. But few cases of **nerve-transplantation** have been reported. In Peterson's case there was a return of sensation in the anesthetic area the day after the operation. Two weeks after operation sensation had almost completely returned and the hand had become a natural color, and 5 weeks after operation the strength of the muscles of the thumb was greatly improved.

Jaboulay[4] advocates division of the sacral sympathetic for the treatment of certain cases of **pelvic neuralgia.** He has noticed that vaginismus and pelvic neuralgia are likely to disappear after hysterectomy or oöphorectomy. The surgeon thought that this might be due to division of the fibers of the sympathetic rather than to removal of the organs. He treated a case of vaginismus by excising 3 cm. of the sacral sympathetic of the right side and dividing the sympathetic on the left side. In order to reach this nerve he made a transverse incision about 10 cm. posterior to and above the anus, separating the rectum from the anterior surface of the sacrum, and pushed forward the rectum. In another case he made a left parasacral incision, and thus divided the anterior branches of the sacral plexus. In each case the vaginismus completely disappeared by the next day. In both cases there were vulvovaginal hyperesthesia and retention of urine of 2 days' duration in 1 case and 4 days' duration in another.

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[1] Ann. of Surg., Dec., 1898.

[2] Med. Rec., Feb. 4, 1899.

[3] Am. Jour. Med. Sci., Apr., 1899.

[4] Sem. méd., Jan. 18, 1899.

W. W. Bostick[1] reports a case of violent **neuralgia of the upper extremity** following injury. The arm was amputated in the upper third without relief. Excision of the bulbous ends of the nerves did not produce relief. Finally the brachial plexus was excised, the origin of the long thoracic being uninterfered with. This completely relieved the patient.

John H. Jopson[2] reports a case of **dislocation of the ulnar nerve.** He says there are 9 cases on record, which are described as congenital, habitual, or spontaneous. There are 15 cases on record, besides his own, which are traumatic. In Jopson's case the pain was severe, and operation was suggested because of the fear of neuritis. The nerve was exposed by an incision and the groove was found either absent or filled up, and the fascia which lay over the nerve was separated from the olecranon process. A groove was formed by dividing the fascia over the heads of the flexor carpi ulnaris muscle between the olecranon and internal condyle, and by making a longitudinal incision in the inner head of the triceps. The nerve was laid in this incision and kangaroo-tendon sutures passed through the triceps tendon and loosely round the nerve, and tied carefully so as to make no pressure on the nerve. The fascia over the gland was united by catgut and the wound closed. This patient made a most satisfactory recovery. Three weeks after operation the nerve could be felt in position. Flexion was free, but when carried beyond a right angle, there was some pain. Two months after operation the motion of the arm was perfectly free and there was no pain nor discomfort.

J. Hutchinson, Jr.,[3] discusses **excision of the Gasserian ganglion** for trigeminal neuralgia. He says that practically there are only 2 methods of approaching the ganglion: One route is from below through the base of the skull, after resection of the zygoma and some part of the lower jaw; this is the pterygoid route. The other is through the outer side through the temporal fossa—the temporal route. The temporal route possesses certain advantages. The incision in the temporal route is short, but little muscle is divided, and the scar is hidden by the scalp. The ganglion can be thoroughly exposed with little risk of opening the subarachnoid space. The only portion of the skull divided is the squamous part of the temporal bone. There is no danger of communicating with the Eustachian tube and pharynx. Certain objections may be urged to the pterygoid route. The wound leaves a disfiguring scar upon the face; there may be necrosis of the zygoma and the coronoid process may be lost. There is often severe bleeding from the pterygoid plexus of veins and from the internal maxillary artery. There may be difficulty in finding the foramen ovale, which opening is sometimes hidden by the pterygoid spinous ridge. In trephining, the Eustachian tube may be opened, and if this happens septic infection is likely to follow. The dura mater may be opened, which is a serious matter. The internal carotid artery may be damaged. The ganglion cannot be clearly exposed by the pterygoid route, and very frequently only fragments of it are gotten away. In some cases necrosis of the zygoma has followed. Some surgeons believe the operation proposed by Quénu and Hartmann is a good one. These surgeons divide the zygoma at each end and remove the greater wing of the sphenoid bone inward to the foramen ovale. This is practically the removal of the whole floor of the middle fossa. Hutchinson thinks that the subdural method by way of the temporal fossa is the only proper plan to remove the Gasserian ganglion. Horsley has found that it is possible to excise the ganglion without cutting the meningeal artery, and this is a great advantage. If it is divided during the operation, we should plug the foramen spinosum with a little bit of bone. There should be no haphazard cutting in the attempt to remove the ganglion. The second and third divisions must be thoroughly exposed, and divided just above their foramen of exit. Then the root-trunk must be sought for and divided. If the ganglion is drawn outward, the surgeon will be able to deal with the ophthalmic branch without injuring the oculomotor nerves, the carotid artery, or the cavernous sinus. In several recorded cases the ophthalmic branch has not been divided, and yet the neuralgia has been completely relieved, and, of course, the nutrition of the eye was not endangered. It is impossible to avoid the motor root of the ganglion, and hence there is atrophy of the masticatory muscles of that side; but this produces little inconvenience. If the Gasserian ganglion has been thoroughly dealt with, the neuralgia does not return. One of Krause's patients has been free from neuralgia for 5 years; 1 of Horsley's, for 4 years.

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[1] Med. Rec., Sept. 10, 1898.

[2] Phila. Med. Jour., Sept. 10, 1898.

[3] Brit. Med. Jour., Nov. 5, 1898.

William Rose[1] considers the practical value of extensive removal of nerve-trunks in the operative treatment of **trigeminal neuralgia.** By either route the intracranial operation is dangerous and difficult, and it should be the last resource for cases that have resisted all other treatment or have recurred after extracranial operation. In the past, most operations of division or removal of nerve-trunks have been of but temporary benefit. Simple neurotomy gives very transitory relief; and even when a centimeter or so of the nerve is removed, the relief from pain is not of long duration. But Thiersch's work on nerve-extirpation has been of infinite value. At some accessible spot he frees the nerve from its connections, grasps it with a pair of specially made forceps, and by torsion draws out a length of it distally and proximally, cutting the peripheral end and tearing off the central end. He records many successful cases performed upon the supra-orbital and infra-orbital, the inferior dental, and the lingual branches. Rose approves strongly of this method, and has found it in his own practice eminently satisfactory: he now adopts it instead of the more serious step of attacking the Gasserian ganglion. In most cases he has seen lately the chief painful areas have been in the distribution of the second and third divisions, though the ophthalmic is affected sometimes by a kind of radiation. If the other 2 trunks are dealt with in this way, there is complete immunity from pain. He says that in a well-established case of tic, all minor operations on peripheral branches are worthless. The main trunks should be attacked as they emerge from the cranium; and as it is not practicable to deal with the second and third divisions in one operation, he takes the second division at first, and after a few weeks operates upon the third division. He then describes in detail his method of operation. He says the success obtained in such cases depends upon the amount of nerve removed, and in those severe cases for which formerly he would have endeavored to remove the Gasserian ganglion, he prefers to try the effect of this extra-cranial operation. It is less difficult and less risky. He has operated on some 40 cases. There has been no recurrence worthy of mention in cases operated on in 1893 and 1894.

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[1] Practitioner, Mar., 1899.

W. W. Keen and W. G. Spiller[1] present some records on resection of the Gasserian ganglion, with a pathologic report on 7 ganglia removed by Keen. The whole report deals with 11 cases. The pathologic findings show first that the medullary substance of the nerve-fibers in the ganglion and in its branches is swollen, is atrophied, or entirely gone; that the axis-cylinders are greatly degenerated or even destroyed; that the cells of the ganglion may be so degenerated as to give rise to doubt, but for the occasional observation of a nerve-cell, whether we were dealing with ganglionic tissue. The vessels are distinctly sclerosed. In 1 case there was great increase in the connective tissue of the ganglion. It seems probable that the ganglionic changes are secondary to changes in peripheral nerves. Keen believes that if a facial neuralgia has lasted for 3 or 4 months without being cured by drugs, we should perform a peripheral operation, in the hope of relieving the pain and preventing the upward progress of the disease. We should not remove the ganglion until we have first tried peripheral operation, and this should be the rule until improvements in technic have rendered the operation safer. The method preferred by Keen is the Hartley-Krause method. He does not think there is any real danger of corneal ulceration if the lids are sewed together for a time, and when the stitches are removed from the lids the eyeball is for a time protected by a Buller shield. Keen considers the mortality of the operation to be over 20%, and he thinks that if the ganglion is entirely removed the pain will not return. He advocates the removal of the entire ganglion, not leaving the inner part of it and not attempting to save the motor root.

Rayneau,[2] at the Congrès des Médecins Aliénists, considered the causes of the mental disturbances that usually follow surgical operations. The patient may develop mania, melancholia, dementia, delusional conditions, hysteria, etc. There is no one single type of affection that can be called **postoperative insanity.** The most important point is, Can such disturbances occur in any person, or only in one who is predisposed to mental disease through heredity or other previous condition? The latter view is the one best sustained by evidence. It is doubtful what the exciting cause is in such cases. It may be the profound moral effect of the operation-shock, the use of the anesthetic, the employment of antisepsis, preceding ill-health, septic infection, and alcoholism. The most frequent causes are probably septic infection and alcoholism. A gynecologic operation is not more apt to produce this condition than is any other operation. Postoperative insanity is a rare condition which is met in from 1% to 2% of surgical cases.

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[1] Am. Jour. Med. Sci., Nov., 1898.

[2] Jour. de Neurol., Aug., 1898.

Kocher[1] discussed at the German Congress of Surgery some questions relating to operations for epilepsy. He said that in recent years the profession had lost confidence in the operative treatment of epilepsy. The older statistics, alleging that operation cured 70% of cases, had been proved to be wrong; and the later statistics of Graf and Braun show that from 2% to 4% of cases operated upon are cured. Kocher says that the results are much better when the dura mater has been opened than when it has not been; and this fact confirms a view he has long maintained, that epilepsy is due to a general or local increase of intracranial pressure, and by opening the dura we obtain a safety-valve which lowers this pressure. He reports 6 cases in which there has been no recurrence of epilepsy after 3 years. In these cases the membrane that covers the trephine-opening is still soft and yielding. In his cases which recovered after trephining, the trephine-opening was closed with a very hard material. In 18 cases of complicated fracture of the skull, the parts were so injured in 17 of the cases as to permit him to obtain a safety-valve to diminish pressure. In 1 case he could not do this, and this was the only case that developed epilepsy. It is possible to produce epilepsy in a guinea-pig by making repeated slight blows on the head with a light hammer. These blows increase the intracranial pressure; but if the dura mater is incised before the blows are delivered, it is impossible to produce epilepsy by this method. These facts explain the causative influence of cerebral cysts. In 1 of his cases it was necessary to drain a cyst for 3 years before a cure was obtained. He states that the ventricles can be drained by drilling through the skull and inserting the needle of an aspirating-syringe.

Jaboulay and Lannois[2] present a study on resection of the sympathetic nerve in the treatment of **epilepsy.** The recorded cases show that some patients are cured, some are improved, and many are not benefited. These authors report a case of a boy of 18, who developed epilepsy as a result of a fright. He sometimes had 8 attacks in a day. Jaboulay removed the cervical sympathetic ganglia of one side and stretched the pneumogastric in the other side, and the boy had no more attacks. The authors maintain that stretching the pneumogastric may modify the excitability of the lower portions of the brain. In some other of the authors' cases the condition was improved but not cured by the operation, and in others no benefit seemed to result. Jaboulay is becoming doubtful about the advisability of the treatment, because he has noticed that in the cases in which there was improvement, and especially in those which were cured, there was a strong hysteric element. The authors therefore arrive at the conclusion that this operation should be abandoned, just as we have already abandoned ligature of the vertebral vessels. LaBorde[3] discusses the value of resection of the sympathetic nerve for epilepsy. He made guineapigs victims of epilepsy by partially dividing the spinal cord, and then removed the great sympathetic with its ganglia; but he found this produced no beneficial effect on traumatic epilepsy; in fact, it seemed to make it worse. If one simply removed the sympathetic, a consecutive epilepsy may result from this operation. It caused a congestion of the brain, which might possibly be assumed would benefit certain mental conditions. Carl Beck[1] reports 3 cases of the removal of the sympathetic ganglia of the neck for epilepsy. He comes to the conclusion that this method, which was suggested by Jonnesco, has practically no value, and that the few changes for the better that are reported are accidental or such as may be observed after any operation. The operation has enabled us, however, to determine the influence of the removal of the sympathetic nerves and ganglia of the neck upon the eyes, and this influence suggests that the remedy may be valuable in the treatment of exophthalmic goiter.

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[1] Jour. Am. Med. Assoc., May 13, 1899.

[2] Rev. de Méd., Jan. 10, 1899.

[3] Gaz. hebdom. de Sci. méd., Jan. 8, 1899.

Albert I. Bouffleur[2] writes upon **cerebral contusion.** His conclusions are as follows: "1. The term 'cerebral concussion,' as generally employed, is definite and unsatisfactory, and inconsistent with modern ideas of pathology and precision. 2. The term 'cerebral concussion' should be limited to those phenomena resulting from disturbance of the function of the brain by trauma, without the production of gross mechanical lesions of the brain. 3. The slightest manifestation of concussion is due to disturbance of the fluid equilibrium of the brain, and is always of momentary duration and effect. 4. More severe concussion produces spasm of the vasomotor system, and results in the production of signs and symptoms that are identical with and undistinguishable from those of shock, and which persist until the circulatory equilibrium is restored, and not thereafter. 5. The gross mechanical lesions of the brain produced by trauma, with or without fracture of the skull, are identical with those of contusion elsewhere. 6. The clinical history corresponds with what we should naturally expect from a contusion of tissues of such delicate structure and of such specialized function with such anatomic relations. 7. The treatment of contusion of the brain is the same as that of contusion elsewhere, with the special demand for the early treatment of complications. 8. The term 'cerebral compression' indicates a mechanical disturbance of the circulation of the brain by any lesion that materially increases intracranial tension."

Norman Bruce Carson[3] reports some cases to show that the **"cranial cracked-pot" sound** may be a valuable **symptom of cerebral tumor.** He reports 4 cases of cerebral tumor in which this cracked-pot sound was present. The diagnosis of 3 of these cases was subsequently confirmed by postmortem examination. This sound is due to a separation of the sutures, and is apparent only in cases in which the sutures have been united and again separated by pressure from within, as in cases of acquired hydrocephalus. It is not present in congenital hydrocephalus. The only other condition in which he has found this sound present is in extensive linear fracture of the skull. The cranial cracked-pot sound must not be mistaken for the high-pitched sound present in some cases of brain-tumors, as it is not a high-pitched sound, but rather the clear, distinct, cracked sound like that produced by striking a cracked pitcher or an iron pot, and is best attained by percussing the cranial bones with the finger instead of the pleximeter. It is not necessarily a sound of childhood, but may be present at any period after the sutures have become firmly united. In an analysis of 49 cases of cerebral tumor there is mention of **hydrocephalus** in 22; so that with hydrocephalus present in such a large percentage of the cases this sound must be an important symptom, and it probably can be detected in cases in which there is actual pressure from ventricular effusion. Hydrocephalus is not always easily diagnosticated by ordinary methods because there is considerable hydrocephalus before there is an apparent increase in the size of the head. The cracked-pot sound would indicate the existence of pressure from within.

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[1] Chicago Med. Recorder, Apr., 1899.
[2] Phila. Med. Jour., Oct. 29, 1898.
[3] Ann. of Surg., Sept., 1898.

E. Blanc[1] makes a later report on the 7 cases in which he performed **craniotomy for microcephalic idiocy.** Two of the cases were operated on in 1891; 1 of them in 1893, and the others later. He maintains that in every case there was positive and immediate benefit; then the conditions ceased to improve, and finally the patients returned to their original state. The glimpses of intelligence which they exhibited for a time were no longer shown; the face became expressionless; walking became difficult, and excitement again appeared. That is, the author maintains, there was temporary benefit, but the ground so gained was rapidly lost. He thinks that this result may arise from the nature of the microcephalic idiocy. The most common form of microcephalic idiocy is known as primitive microcephaly. In this there is arrest of brain-development at the fourth month of intrauterine life, and surgical operation can do no good. When we have to deal with those rare cases of postembryonic or late microcephaly better results may possibly be obtained. Blanc disapproves of Doyen's temporary hemicraniectomy or Jaboulay's method of mobilizing the vault of the cranium. In primitive microcephaly it is not the cranium that is at fault, but the brain itself, and operation is useless. [We disbelieve, as a rule, in the operative treatment for idiocy.]

Sutherland and Cheyne[2] write upon the employment of **intracranial drainage** in the treatment of hydrocephalus. They have employed a new method, and report 3 cases. Their theory is that the ventricular distention is due to closure of communicating channels between the ventricles and the subarachnoid spaces. It is impossible for fluid to collect under pressure in the subarachnoid spaces, since these spaces communicate directly with the veins. In hydrocephalic children the 2 lateral ventricles, as a rule, freely communicate, so it is sufficient to establish drainage on one side of the brain. The drainage is carried from the ventricle to the subdural spaces, a very small opening being made in the dura, and a number of strands of catgut tied together being passed into the ventricle and the other end being maintained in the subdural space. The dura is sutured, and so is the skin. In 1 case this operation was done, and the head diminished notably in size, but the child's mental condition did not improve, and death from basilar meningitis occurred in 3 months. In another case the head diminished notably in size, but only on the side operated upon. In this case the 2 lateral ventricles could not have communicated freely with each other; therefore the operation was performed upon the other side. Physical improvement followed, but not mental improvement. Another patient was operated upon in the same way, but the child died of measles before there was any opportunity for improvement to take place. [In 1 case of our own no good result followed.]

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[1] Loire méd., Dec. 15, 1898.

[2] Brit. Med. Jour., Oct. 15, 1898.

Sworykin[1] writes on the repair of trephine-openings. He has employed various materials experimentally upon rabbits. He has used dead cartilage and living cartilage, and plates of phosphate, carbonate, and sulphate of lime, with a little gelatin. After a time he decalcified the bones and made an examination. He found that granulation-tissue grew from the periphery toward the center, was converted into connective tissue and ultimately ossified, and the foreign materials were absorbed. The entire process with the mineral plugs required about a year and a half; but when cartilage was used, it was very much more rapid.

J. Grekoff[2] has treated osseous defects in the skull by the use of **calcined bone.** He has tried this procedure, twice with success, in children. The defect should be filled as evenly as possible, the edges being freshened. This method has been advocated by Barth, who employed spongy calcined and sterilized bone on animals, and on the tibia in man.

Leonard Freeman[3] has experimented to determine the value of **egg-membrane in preventing adhesions** after trephine-operations. He says that many most successful operations on the brain have had their results ultimately destroyed by the formation of adhesions between the brain, the membranes of the brain, and the scalp. In order to prevent this Keen has devised the inversion into the trephine-opening of a pedunculated flap of periosteum obtained from the adjacent skull-area. This method is troublesome and not quite satisfactory. Beach has suggested the introduction of gold foil. Abbe has advised the use of rubber tissue; but experience shows that either of these materials may be surrounded by connective tissue and may cause more extensive adhesions than would otherwise have occurred. Even heavy foil is apt to crack and break into smaller pieces, and rubber tissue finally disintegrates, and any foreign body may cause suppuration. Freeman conceived the idea that the lining membrane of the egg possessed certain advantages for this purpose. The membrane is compact and tough in spite of its extreme thinness. It is so durable that it has been used to close perforations in the tympanum, where it often remains intact for many months. He assumed without question that the contents of a fresh egg must be aseptic. A newly laid egg was scrubbed and sterilized in mercuric chlorid; the shell was cracked and peeled from the underlying membrane. Animals were trephined, the brain-membranes cut away, and the brain-surface lacerated. A bit of egg-membrane was removed and inserted in the openings. The animals were killed after varying intervals, and the egg-membrane was found intact or replaced by a new tissue, and the brain and scalp were not adherent. Microscopic examination showed that in 1 week the egg-membrane had been replaced by a layer of adipose tissue containing blood-cells, and underneath this was a delicate layer of connective tissue containing many round cells, which tissue filled the trephine-opening. The author feels that it is justifiable to claim the following advantages for this new material: It is inexpensive and can be easily obtained. It is not really a foreign body, but seems to incorporate itself with tissues without causing irritation or cicatricial deposits. Even though it is ultimately absorbed, it remains intact sufficiently long to accomplish the purposes for which it was inserted, and there is no danger of infection, which would require a second operation and lead to the extensive formation of connective tissue. [We believe this suggestion of Freeman is important. We have not as yet used egg-membrane in the brain, but shall not hesitate to do so. In a case in the Jefferson Medical College Hospital in which the median nerve was extensively exposed by an accident, it was used by J. C. Brick, with perfect success, to prevent adhesion of the nerve to the scar.]

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[1] Vratch, No. 25, 1898; Centralbl. f. Chir., Aug. 27, 1898.

[2] Centralbl. f. Chir., Oct. 1, 1898.

[3] Ann. of Surg., Oct., 1898.

DISEASES OF THE SPINAL COLUMN AND SPINAL CORD.

Theodore F. Prewitt[1] discusses the subject of **gunshot injuries of the spine,** and reports a case. The patient was paralyzed on both sides. After incision, it was seen that the bullet had struck the third lamina, fractured the bone, and lodged in the canal. Fragments of bone were removed, and the bullet was seen lying with its point just through the dura. The bullet was removed. The patient recovered, and 4 years later showed only some slight defect in the movement of the right arm. Prewitt presents the records of 49 cases of gunshot injury treated since the antiseptic era: 24 were operated upon, with 11 recoveries and 13 deaths; 25 were not operated upon, with 8 recoveries and 17 deaths. In the cervical region in cases operated upon the mortality was 55%; in the dorsal region, 66%. There were 3 operations for injury in the lumbar region, and all recovered. Prewitt's conclusions are as follows: Immediate operation should be advised if the wound is in an accessible region and involves the lateral or posterior portions of the spine, unless the patient's condition is hopeless. To wait for nature to effect repair is often to stand idly by while some removable cause produces inflammation or degeneration. Operation is not necessarily contraindicated because the bullet has damaged or entered one of the great cavities.

J. C. Munro,[2] in a paper on **laminectomy,** read before the Suffolk District Medical Society, discusses 17 cases, and concludes that the performance of the operation does not require more than ½ hour; shock is very slight when the operation is completed in ½ hour, but becomes marked in longer procedures; the fact that the cord is hopelessly damaged cannot always be known before exposure of the cord; as Horsley says, sepsis is the only danger; the anesthetic is not specially dangerous; the osteoplastic method has no advantages; there should be a single median incision in the soft parts; hemorrhage is usually arrested by packing; the laminæ are cut by special forceps or, rarely, by a chisel; operation must not be performed until the severe shock of the accident has passed; operation is not justifiable if the cord is known to be completely crushed or divided (this cannot always be positively recognized), or if spontaneous recovery seems to be taking place. It is possible that in acute myelitis temporary relief may be obtained by evacuating subdorsal fluid; it is certain that in chronic cases relief can be so obtained.

A. V. L. Brokaw[3] reports a case of **fracture-dislocation** of the

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[1] Ann. of Surg., Aug., 1898.

[2] Boston M. and S. Jour., May 18, 1899.

[3] Med. Rec., Oct. 15, 1898.

cervical vertebræ in which segments of vertebræ were wired and pressure was relieved. This man, 7 months before seeing Brokaw, fell backward over the side of a wagon. When seen by the author he had irritative cord-symptoms, cutaneous numbness with attacks of shooting-pain; paralysis of the dorsal cutaneous, superficial palmar, and muscular branches of the ulnar nerve in the forearm; and partial Erb's palsy. Patient felt much easier when recumbent with the head extended. Skiagraphs showed the vertebral distortion. Operation was determined on. An incision 5 in. in length was made. The soft parts were reflected. It was found that the fourth cervical spine had been fractured and was irregularly united, the spines of the fifth and sixth vertebræ were widely separated, the ligamenta subflava was partially separated, but the ligamentum nuchæ was intact. There was marked lateral rotation. The parts were brought into nearly normal position by rotating the head from side to side and carrying it down over the end of the table. A piece of stout silver wire was thrown around the spines of the vertebræ involved in the fracture and twisted. Because the upper portion of the wire was insecure, a ring of wire was passed around the third cervical spine and silkworm-gut sutures were passed from one link to the other. The wires were anchored to the tendinous aponeuroses and muscles of the back by sutures of kangaroo-tendon. The wound was closed and dressed, and the parts were kept rigid by a helmet and cuirass of starched bandage and strips of binders' board. The patient recovered and was greatly relieved, the pain was absolutely cured, and now the only vestige of the old trouble is a partial paralysis in the distribution of the ulnar nerve.

Noble Smith[1] says that some surgeons maintain that every case of **vertebral caries** should be operated upon, because sufficiently good results cannot be otherwise obtained, and because every portion of diseased bone ought to be removed. Smith opposes both propositions. He believes that if the spine is thoroughly fixed by an appropriate apparatus and extended by the surgeon himself according to the comfort of the patient, and the health of the patient maintained by proper food and medicine, almost every case will be cured. Undoubtedly, in some cases, operation is demanded. It may sometimes be necessary to evacuate abscesses or remove pieces of necrosed bone; in fact, an abscess should be opened as soon as it forms. In regard to removing tuberculous bone, it is not yet possible to define with accuracy the area of disease; and even if we could define this area, operation would not prevent recurrence in other parts after the diseased portion was removed. Examination of pathologic specimens shows how it often must be impossible to remove all diseased structure. Smith shows a picture of a specimen in which many of the vertebral bodies are diseased.

Lange[2] opposes Calot's method for **forcibly correcting angular curvature** in the majority of cases. He admits that if skilfully carried out there is not much danger to life, and that early results seem extremely favorable, but asserts that the improvement is not permanent. A large gap exists after forcible correction, which space is at first filled with blood or softened tuberculous material, later by tuberculous granulations, or possibly by fibrous tissue; but there is no evidence that bone forms in the space. It is true that the spine may become fairly firm by

[1] Lancet, Aug. 27, 1898.

[2] Wien. Klinik, Heft 1, 1899.

osseous union of the arches and processes of the diseased vertebræ; but such a union is at best fragile, the back will be always weak; a fracture will be easily induced and may result most disastrously. If a case presents angular curvature and persistent paraplegia, Calot's treatment is proper, and in spite of the possible risks should be employed.

Ducroquet[1] **reduces angular deformity** in the following manner: Give chloroform to light anesthesia. Apply extension by Sayre's apparatus to the head only, the toes being allowed to touch the ground. Any deformity not remedied by extension is corrected by hand pressure. A plaster jacket is applied after correction is obtained. This method of reduction is less forcible than Calot's. [We should hesitate to place a person in the erect posture while under chloroform.]

A. M. Phelps[2] discusses the question of the **forcible correction of deformity in Pott's disease.** He says: An old and extensive kyphosis with an ankylosed spine should not be so treated. A case with a large abscess is unsuitable for this treatment. The cases which promise the best results are those which are recent and in which deformity is commencing; cases in which there is no abscess or in which the abscess has discharged; and cases of paralysis not due to invasion of the spinal canal. The operation is followed by better results in the lumbar than in the dorsal region. In proper cases the operation is useful, but it must never be applied indiscriminately.

Nicoll[3] believes in operating for **spina bifida.** If the sac has a small neck, simply ligate it; if it has a large neck, close the opening with rows of catgut sutures. Large flaps of skin and mesoblastic structures are employed to close the gap; the margins of the mesoblastic structures being inverted just as the margins of a cut intestine are inverted by Lembert sutures. The skin-edges are turned outward in suturing. A ridge is formed by this method, which ridge strengthens the flaps. Of 32 cases operated upon, 25 recovered. In several of the fatal cases the patients had hydrocephalus as well as spina bifida.

C. V. Pearson[4] advocates treating **spina bifida by open operation,** followed by closure of the spinal canal. The author does not think that paralysis below the tumor positively contraindicates operation, because in some cases the paralysis may be due to the pressure of the fluid in the sac. Pearson lays particular stress upon the following points: "1. The patient should be lying on the side, with the head low. 2. I think the first incision should in all cases be a lateral one, so as to avoid the possibility of wounding the cord or nerves. Moreover, this lateral incision, made on what is the uppermost aspect of the tumor in the posture recommended, gives a complete view of the interior of the sac. I believe that Mayo Robson uses a median incision in cases of simple meningocele, but I should not be disposed to adopt it, as many authorities state that it is often impossible to say whether the cord is present or absent; and in any case, as the central portion of the skin and sac will have to be removed, I cannot see the object of a median incision. 3. I think it is a distinct advantage to retain the fluid in the sac or replace it by irrigation during the separation of the cord, etc., from the skin. If I understand correctly, Robson advocates that in cases in which this separation is difficult a portion of the skin should be left attached to the cord, and placed with it in the spinal canal. This, to me, seems an objectionable proceeding, if it can possibly be avoided, as I think covering up such epidermic structures is likely to give rise to after-trouble, such as the growth of hair or the formation of sebaceous tumors. 4. The insertion of the sponge to prevent leakage from the canal during operation. 5. The liberating lateral incisions I have used enable the aponeurotic coverings to be glided into a position of complete approximation over the canal, and to be retained there by sutures without the tension which would otherwise exist. 6. The operation I have described is applicable to cases of meningomyelocele—by far the most common form met with in practice, and which has usually been regarded as a form on which it was unjustifiable to operate. 7. I think the use of a small drainage-tube for a few days between the dura mater and aponeurotic covering is advisable, in case leakage of cerebrospinal fluid occurs."

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[1] Arch. di Ortoped., No. 4, 1899.

[2] Post-Graduate, Feb. 18, 1899.

[3] Brit. Med. Jour., Oct. 15, 1898.

[4] Ibid., Nov. 5, 1898.

DISEASES OF THE KIDNEYS AND URETERS.

MM. Guyon and T. Albarran[1] discussed the subject of **nephrotomy** at the French Surgical Congress of 1898. They restrict the term nephrotomy to the making of an incision into the kidney; but when the pelvis of the kidney is opened through the kidney-substance, and the wound is kept open and a fistula is formed, they call the operation **nephrostomy.** So a nephrotomy can be designated the making of a temporary opening into the kidney. This procedure may be employed for exploratory purposes, and is superior to acupuncture, and the x-rays in these cases have not been conclusive. The kidney is reached through the lumbar incision, but its fatty capsule is stripped from it and the organ is lifted outward, so that the vessels of its pedicle can be compressed by the fingers of an assistant. An incision is made into the pelvis through the convex border of the kidney. When the incision is so made there is but a small amount of renal tissue cut; the hemorrhage is slight; it exposes a large amount of renal tissue, and gives free access to the pelvis and calices. If after this incision a stone is found and extracted, we call the operation **nephrolithotomy.** Some surgeons believe in extracting a stone through an incision in the walls of the renal pelvis, the operation known as **pyelotomy.** But such an operation, although it is free from the evil of cutting the secreting portion of the kidney, does not permit of free extraction. It is often very difficult to remove calculi from such a cut, and a fistula frequently follows. Nephrostomy, or the formation of a renal fistula, may be performed by either the lumbar route or the transperitoneal route; the lumbar route is preferable. If a permanent fistula is made into the kidney before retention of urine has existed, the urine will be abundantly secreted. When retention has existed, it may take a little time to re-establish the function of the kidney, but this will subsequently be accomplished. If the retention was of a septic nature, there will be more pronounced alterations in the kidney-parenchyma than in cases of uronephrosis; more marked in cases in which the retention was of long standing and in complete retention. Nephrostomy is employed, in the first place, to relieve renal retention, septic or aseptic; and in cases of anuria to re-establish the functions of the kidney. A patient with calculus-anuria is in a very grave condition. It is likely that both kidneys are diseased, and nephrostomy is preferable to ureterotomy, or to pyelotomy, or to nephrotomy. Nephrotomy is objectionable, because if the kidney is sutured far less urine is secreted than if it is left open. Ureterotomy is an operation that takes a long time to perform, and pyelotomy is by no means so successful. The authors say in uronephrosis, if the patency of the ureters cannot be re-established, that nephrectomy should be performed; but the conservative operation of nephrostomy is temporarily a benefit. Nephrostomy is a useful procedure in the treatment of pyonephrosis. Of course, it may be followed by a permanent fistula; but the fistula usually heals. In simple pyonephrosis nephrectomy is rarely required, and we must remember in this disease the other kidney is very generally affected, and that the organ, though diseased, is usually capable of valuable functionation. Plastic operation, if undertaken, should be done secondarily rather than primarily. In **tuberculous pyonephrosis** nephrotomy should be performed if the condition of the other kidney is unknown, or when the local conditions are such as to render nephrectomy exceedingly dangerous.

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[1] Rev. de Chir., Nov., 1898. Supplement.

Nasse[1] reported a case in which he successfully performed nephrectomy for a crush of the kidney. He groups cases of wounded kidney as follows: 1. Those cases in which profound hemorrhage occurs at once after the accident, and in which the patient, if left alone, would die in 24 hours. 2. Cases in which intermittent hemorrhage occurs, the bleeding taking place over a period of several weeks, at the end of which time the patient may die of anemia. 3. Cases in which the hemorrhage entirely stops and the case appears to be doing excellently, when violent hemorrhage again begins and the patient dies in collapse. In the third group an immediate operation must be performed. Many cases in the second group are cured without operation; but if anemia becomes marked an operation should be performed. The operation which must be performed will be determined only after exposure of the kidney; in some cases ligation is necessary; in other cases complete nephrectomy must be performed.

Thorkild Rovsing[2] writes on obscure **hemorrhage** from a single kidney, and the cure of such a case by nephrotomy. The explanation of this phenomenon is obscure. We often hear it spoken of as **renal hemophilia,** hematuric neuralgia, and angioneurosis. Rovsing is of the opinion, from an analysis of reported cases and from his own experience, that there are some material phenomena which will account for the bleeding. He reports cases in which there was bleeding from the left ureter occurring in attacks, the bleeding being associated with pain in the loin. The kidney was explored and its upper third found adherent to surrounding structures. The upper portion of the kidney was bluish-red in color, and was easily torn. In other words, this case was a congested kidney; the congestion had been brought about by tight-lacing, compressing the organ against the liver, and the operation produced a cure by freeing it from constricting adhesions. He reports a second case, that of a woman, who had an attack of **hematuria** after lifting a heavy tub. The kidney was found to be enlarged and rigid. Colon-bacilli were found in the urine, and a cystoscopic examination demonstrated that the bleeding was from the right ureter. An operation showed that the kidney was out of place and was attached firmly to the liver, and the liver showed the evidence of tight-lacing. In this case the bleeding was due to the venous stasis produced by torsion of the pedicle in a misplaced kidney, and the operation produced a cure. He reports the case of a man who had had hematuria for 3 months, and whose left epididymis contained an indurated area. Bloody urine came from the left ureter, but there were no bacilli in the urine. Operation was performed; nothing was found, and the patient was cured. The right kidney also was explored. It is possible that in this case a small tuberculous focus may not have been discovered. The fourth case was a man of 28, who had had attacks of pain in the left side with hematuria, and the left kidney was rigid and out of place. The urine contained colon-bacilli, and the cystic examination demonstrated a flow of turbid urine from the left ureter. An operation was performed, and it was found that the left kidney was displaced and the ureter kinked. The patient recovered.

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[1] Deutsch. med. Woch., Aug. 18, 1898.

[2] Brit. Med. Jour., Nov. 19, 1898.

The younger Senn[1] reports a case of **lumbar nephropexy** without suturing, a method of operation devised by the elder Senn. He condemns the passing of sutures through the glandular substance of the kidney, and says that sutures which are tied sufficiently firmly to sustain the kidney must, because of a subsequent cicatricial contraction, destroy a considerable amount of kidney-substance. As a rule, however, these sutures do not remain in place, but cut through. Senn maintains that if this operation is performed and the patient kept in the recumbent position until cicatrization is complete throughout the wound, a relapse is impossible, because the kidney is suspended by a band of cicatricial tissue and lies bound upon a floor of connective tissue, and an extrarenal support is thus obtained. The extrarenal support is formed by a union of the fibrous capsule of the kidney with pararenal connective tissue. The operation is performed as follows: An incision is made at the outer border of the quadratus lumboris muscle, extending from the twelfth rib to near the crest of the ilium. The fatty capsule of the kidney is opened; the kidney is seized and the fatty capsule is removed with dissecting-forceps and scissors. The fibrous capsule is scarified with 2 cambric needles held in hemostatic forceps, and the scarification is carried to a degree just short of causing hemorrhage. A strip of iodoform gauze 12 in. long and 2 in. wide is carried underneath the lower pole of the kidney. A gauze pad is placed over the exposed portion of the kidney, and the gauze sling is tied over it. The region beneath the kidney and around it is packed with gauze. The external wound is not sutured. It is well to place a pad in the hypochondriac region to reinforce the gauze packing. Six days after operation the packing beneath the kidney is removed, and 11 days after the operation the gauze sling is removed. The patient should be kept in bed for a month or 5 weeks.

John B. Deaver[2] writes on **movable kidney,** discusses the diagnosis, and says that the operation he prefers is a modification of that devised by the elder Senn. The kidney is reposited in the loin-space, and held in position by an assistant. A vertical incision is made 3 in. in length;. the renal fat is exposed; the outer or adipose layer of this fat is dissected off; all the posterior part of the fatty capsule is cut away, and the anterior part as far as the hilum. The proper capsule of the kidney is scarified with a scalpel, care being taken not to damage the kidney-substance. A long piece of gauze is passed beneath the upper pole of the kidney, and another long piece below the lower pole, and the organ is reposited. Gauze is now packed round and over the kidney, and over this gauze packing the long strips of gauze are tied, and a large gauze pad is placed upon the anterior abdominal wall over the site of the kidney. The wound is dressed. The operation requires only 10 or 15 minutes to perform. The patient is placed in a supine position after it is over. The gauze is removed in a week or 10 days. The wound is gently repacked and dressed after the usual manner. The wound heals completely in from 4 to 5 weeks. Sottocasa[1] advocates the following method of fixing the movable kidney. Simon's incision is made to expose the kidney, the fatty capsule is incised, and a portion of the middle of the convex edge of the kidney protrudes. An incision 2 cm. in length and 1 cm. in depth is made in the upper third of the free edge of the kidney, and a flap 2 cm. long and 1 cm. wide is cut from the quadratus lumborum muscle, and is fixed into the wound of the kidney and to the capsule of the kidney, silk sutures being employed. The wound is then closed by buried sutures. This operation has only been tried so far on dogs, but in them it has been shown that the muscle-flap is converted into firm connective tissue and incorporated with the kidney-substance. [This procedure seems unnecessarily severe, and we would hesitate to practise it. That many operations for movable kidney do not give a permanent result is certain. We operate only upon cases in which the displacement causes symptoms and in which the organ makes wide excursions irrespective of symptoms. The neurasthenic state so commonly associated with movable kidney rarely passes away after operation.]

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[1] Jour. Am. Med. Assoc., Apr. 1, 1899.

[2] Ann. of Surg., June, 1899.

Roswell Park[2] discusses the indications for operation in **tuberculosis of the kidney.** He says when we once come to a conclusion that a kidney is tuberculous, the sooner operation is performed the better, providing that the other kidney is free from disease and that there is no tuberculous lesion elsewhere which can be considered a contraindication. Very rarely is the diagnosis made so early that we are justified in relying on nonsurgical measures, and it is very exceptional to meet with a case so limited that a partial nephrectomy is justifiable. If both organs are affected with tuberculosis, removal of one of them will do harm rather than good. We must carefully examine to see if there are any extensive tuberculous lesions elsewhere, especially in the lungs, the mesentery, the intestines, etc. It is not necessary to consider tuberculous lesions a contraindication for operation on the kidney if these lesions are in situations that can be reached surgically, as the bones, the joints, the skin, and the lymph-glands near the surface. The operation is of doubtful propriety if there is tuberculous disease of the prostate and seminal vesicles, and perhaps of the testicle. If the ovaries are diseased, they may possibly be removed at the same time as the kidney. When other deep organs are involved, operation is inexpedient. When the peritoneum is involved, it may be wise to remove the kidney by the peritoneal route, in the hope of obtaining benefit from opening the abdomen. If the disease has lasted long the ureter is usually involved, and the surgical indication is to remove the ureter with the kidney. Removal of the ureter, however, may prolong the operation so as to endanger life, and under these circumstances, if the ureter is left in place, a few drops of 50% solution of zinc chlorid should be injected into the ureter, or we should pass along it a probe whose tip is covered with melted silver nitrate. Some surgeons recommend lumbar drainage for tuberculous kidney, but this is regarded by Park as a great mistake, as there is great risk of infection of the wound and dissemination of the disease. After early removal of a tuberculous kidney in which the disease is not seriously advanced, the progress of the infection to the rest of the genitourinary tract may be delayed and sometimes checked. Park thinks in choosing the operation the intraperitoneal route will be selected only in the presence of certain specific indications. It will be employed in the case of young children, because in them it is the only route by which an enlarged kidney can be safely removed. Of the extraperitoneal methods, the oblique is preferable to the lumbar incision. If we take a table of 100 nephrectomies, probably between 90 and 95 would be done by the oblique incision of König. In some cases it is wise to divide the operation into stages: the first part of the procedure being exploratory, then the wound is packed with gauze, and a few days or a few weeks later nephrectomy is performed.

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[1] Centralbl. f. Chir., Feb. 11, 1899.

[2] Jour. Cutan. and Gen.-Urin. Dis., Aug., 1898.

Franklin H. Martin[1] has made a series of experiments on dogs to determine the proper method of **implanting the ureters in the rectum.** The method has for its object the prevention of subsequent infection of the ureters and kidneys. In his operation the ureters are made to empty into the bowel in the direction of its long diameter, from above downward. They are buried in the rectal walls longitudinally for a distance of 1 in. or more, so that during the act of defecation the fecal mass will obliterate the caliber of the ureter by pressure upon the mucous membrane, and the pressure acts from above downward. The ureters are protected by the muscular coat of the intestine, which surrounds them through their longitudinal course to the extent of 2 cm. The muscular coat of the bowel, surrounding the ureters and acting from above downward, milks the urine downward and holds the ureters closed when the rectum is aiding defecation. The ureters are implanted in the lower bowel, which, it will be remembered, is usually empty except during defecation.

J. F. Baldwin[2] reports a case in which he **excised** 1½ in. of the **right ureter** in the performance of a hysterectomy. The loss of material was so great that it was impossible to do a ureteral anastomosis. It was decided to implant the ureter into the bladder. The bladder was opened on the point of a pair of forceps that had been introduced. The edges of the incision were held apart with other forceps. The end of the ureter was caught with the first pair of forceps and pulled into the bladder-incision, and was sutured with catgut. Finding that the tension was great, he caught the bladder-wall near the point of implantation, and fastened it with catgut to the stump of the broad ligament, thus relieving the tension and forming a sort of roof to protect the ureter. This patient recovered.

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[1] Jour. Am. Med. Assoc., Jan. 28, 1899.

[2] Phila. Med. Jour., Nov. 26, 1898.

Pasteau[1] discusses **catheterization of the ureter.** He does not think it necessary to use either local or general anesthesia. He employs the instrument devised by Albarran, and carries the catheter up to the pelvis of the kidney. Sometimes when the catheter is introduced no fluid escapes, either because there is obstruction or because the fluid is too thick to flow. There was not 1 instance of infection following 140 catheterizations.

Albarran[2] reports 6 patients who suffered from nonfebrile unilateral **pyelitis,** which he treated by means of lavage of the kidney-pelvis through the ureteral catheter. He first washed out with boric-acid solution, and finally used 1 : 1000 silver nitrate. After from 5 to 11 washings there was great improvement. He reported also 4 cases with slight pyelitis which were greatly improved by this treatment.

David Newman[3] discusses the relative value of the cystoscope and of ureter-catheters as aids in the **diagnosis of surgical disease of the kidney.** He says by a careful study of the symptoms and of the physical signs in many cases a positive diagnosis can be arrived at; but in others all ordinary methods of investigation may fail, and yet it may be essential for the surgeon to determine whether or not he shall perform an operation. In some cases cystoscopic examination alone will give conclusive information; in others the ureter-catheters must also be employed. In many cases of renal hematuria and in some cases of pyemia the escape of blood or pus from the ureter can be seen by the cystoscope. If the amount of blood present is small, but still sufficient to color the urine, the cystoscope in the male is more reliable than the ureter-catheter, because the introduction of this catheter into an inflamed ureter may cause slight bleeding, and so destroy the value of the observation. On the other hand, the cystoscope is unable to detect the presence of albumin, bacteria, or tube-casts in the urine from one kidney only. For this purpose the ureter-catheter must be used. The cystoscope, being the safer instrument, must be used first, and when further information is needed the ureter-catheters can be employed. The cystoscope is very useful in enabling us to diagnosticate all vesical and renal lesions that manifest themselves by the presence of pus or of blood in the urine. It will enable us, for instance, to see that no vesical disease is present, and we may even see clear urine flowing from one ureter and contaminated urine from the other. Newman then reports several cases to exhibit the value of the cystoscope and the ureteral catheter. He says objections have been raised to the use of the catheters because of the liability of introducing septic matters into the ureter; but often the ureter is already septic before catheterization is thought of. In cases of cystitis, unless there are exceptional circumstances, catheters should not be employed. Both the ureter-catheters and the cystoscope must be used with aseptic precautions. The instrument should be sterilized, and the meatus and surrounding parts be washed and rendered free from contaminating particles, and after the examination the bladder should be washed with an antiseptic solution. In cases of suspected Bright's disease, amyloid infiltration, or tuberculous lesions of the kidney, it may be necessary to make several examinations with the ureteral catheters before forming a definite opinion. When the surgeon is sure that the other kidney is healthy, he can recommend nephrectomy as a life-preserving operation. Newman insists, however, that catheterization of the ureters is not very frequently necessary, and that, like all new methods of clinical research and treatment, it is likely to suffer from the overenthusiasm of its advocates.

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[1] Ann. des Malad. des Org. gén.-urin., No. 121, 1898.

[2] Ibid.

[3] Brit. Med. Jour., Nov. 5, 1898.

Leopold Casper[1] writes on the **catheterization of the ureters** in both sexes, and pictures the instrument he employs. He says the statement is frequently made that the process is dangerous, 2 elements entering into this danger—traumatism and infection. Only a very awkward operator can inflict traumatism; although, of course, slight bleeding may occasionally be observed. There is certainly a possibility that infection can occur if the bladder is infected and full of microorganisms. Theoretically this danger looks positive; but practical experience has taught us that there is no danger of infection. Casper has never met a case in which infection followed, although he has catheterized ureters over 500 times. We know that the number of cases of pyelitis compared with the large number of cases of cystitis is small, and of these cases of pyelitis but very few are of the ascending variety. Nevertheless, the greatest possible precaution should be used in practising this method; only a master of the technic should employ it. All precautions as to asepsis should be taken, and after the catheterization the ureters should be irrigated with a solution of silver nitrate, and the method should only be employed in those cases when there is distinct indication; that is, when it is necessary for diagnostic or therapeutic purposes. Casper says the method may be of great service: 1. When there is doubt whether there is an infection of the urinary apparatus or not, especially in large abdominal tumors of doubtful origin. 2. In some doubtful cases of an affection of the urinary apparatus the method teaches us if the bladder or kidney and ureter are the seat of the affection. 3. If the disease of the kidney has been diagnosticated, the catheterization of the ureters will show us which kidney is the seat of disease, and will enable us to state the nature of the malady. An entirely new observation is the existence of **spasm of the ureter,** which Casper could demonstrate in a case of hysteric oliguria. He had previously reported occasional spasm occurring in the ureter which might simulate a displacement of the ureter. No urine flowed when the catheter was introduced, but an injection of liquid was followed by a flow of urine. An impediment is formed by a stricture of the ureter, by a distortion or a bend. These cases can be distinguished from spasm of the ureter, as in the former a certain amount of water flows, and in the latter there is not a drop. Ureteral catheterization is of great value in determining the condition of the supposed healthy kidney when one kidney has been found definitely diseased.

M. L. Harris[2] showed to the New York Academy of Medicine his **urine-segregator,** which is employed in the diagnosis of diseases of the urinary tract. The instrument is employed for the separate collection of the urine from the kidneys. By this instrument, the lever being in the rectum or vagina, a septum is raised in the base of the bladder, the beaks of which rotate about its longitudinal axis. Thus the opening of each catheter receives the urine as it escapes from the ureter, passing into the catheter and out at once into the vial. The technic of the use of the instrument is not difficult; the patient should lie flat on the table, the shoulders and hips being on the same level, the legs flexed, and the feet on a level with the hips. The bladder should be well irrigated with sterilized water, and 150 cc. of fluid be allowed to run into the bladder to facilitate the turning of the wings of the instrument. He then described in detail the use of the segregator. If the urine flows from each side, we may be sure that 2 kidneys exist. If the urine flows from 1 side only, we cannot at once conclude that there is only 1 kidney; the fluid of the other may be arrested temporarily or mechanically suspended. By this instrument we can determine the location of a pathologic process, whether in the bladder or kidneys, and whether one or both kidneys are affected. By comparing the urine taken from the bladder just before the examination with that obtained by the instrument, we are able to determine which constituents are of vesical and which of renal origin. We can determine by this the amount of work done by each kidney, or its functional capacity. The instrument should, if possible, be left in place for 30 minutes. As a rule, no anesthetic is necessary. Sometimes cocain is used. In cases when there is painful cystitis, it may be well to give an anesthetic. The instrument should not be used if there is a bladder-growth which bleeds easily, if the bladder is contracted or distorted, or if there is vesical calculus or greatly enlarged prostate. [We consider Harris's instrument extremely valuable. If used with careful attention to the technic as set forth by Harris, it is capable of giving most important information, and, in our opinion, renders the employment of ureteral catheters rarely necessary, at least in male patients. Recently Harris has apparently demonstrated, by means of the segregator, that the flow of urine from the kidneys is intermittent, and that for a period of 10 or 12 minutes there may not be a drop enter the bladder from one side, the other ureter at the time discharging freely.]

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[1] Brit. Med. Jour., Nov. 5, 1898.

[2] Jour. Cutan. and Gen.-Urin. Dis., May, 1899.

DISEASES OF THE PENIS, URETHRA, TESTICLE, VAS, AND TUNIC.

Loumeau[1] makes a report on Rebreyend's operation for phimosis, and advocates a method of **circumcision** which almost completely resects the mucous membrane, but largely retains the skin. The patient is anesthetized, and a narrow strip of skin is removed from around the orifice of the prepuce while that structure is drawn forward from the glans. The skin is pushed back all around, leaving the mucous membrane of the prepuce exposed. This mucous membrane is slit on the dorsum back to the corona, the 2 flaps are cut away, and only a collar of mucous membrane is left back of the glans. The edges of this collar are sutured to the skin with catgut. The suture-line is dusted with powder.

Herbert W. Page[2] reports a case of **epispadias** which he cured by Cantwell's operation. In this operation the surgeon makes use of a flap of mucous and submucous tissue from the open urethra, from the extremity of the glans backward, as far as possible, into the infundibulum. The corpora cavernosa are separated from each other by blunt dissection, a urethral tube is formed out of the flap, this tube is placed beneath the corpora cavernosa, and the corpora are united. The infundibuliform opening is closed by prolonging the incisions of the urethral flap so as to surround it, and suturing the wounded surfaces thus made to bridge over the funnel leading into the bladder. [This operation gives a urethra where it should be (the under side) and a penis with a natural curve. It was described by F. V. Cantwell in the *Ann. of Surg.* for Dec., 1895.]

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[1] Gaz. méd. Belge, Dec. 8, 1898.

[2] Lancet, Nov. 5, 1898.

F. G. Balch[1] reports a case of **papillomatous urethritis.** This is a very rare disease. Papillomas of the urethra are usually multiple, bleed very easily, are most common near the urethra, and are sometimes tender. The patient was a man of 20, who 4 years previously had suffered from gonorrhea, and had used sounds to treat seminal emissions. Later he observed that discharge returned, and discovered a warty growth at the margin of the meatus. The wart was destroyed with chromic acid; but grew again, and obstructed to some degree the flow of urine. The meatus was cut and microscopic examination was made. The anterior urethra in its first 2 in. was covered with papillomas. The urethra was cocainized, the growths curetted away, and the raw area touched with glacial acetic acid; 1 week later the anterior urethra was painted with silver nitrate, 10 gr. to the ounce. Cure resulted.

Mundorf[2] considers electrolysis a valuable agent in the treatment of **chronic glandular urethritis.** It is not necessary to use an anesthetic. The procedure is entirely safe. He gives a seance of 3 minutes to each gland, and employs 4 or 5 ma. He uses Kollman's instruments; a sound with a blunt end for Morgagni's crypts, and a sharp-pointed instrument for Littré's glands.

John M. Robinson[3] says that it is not unusual for inflammation of the urethra and prostate to follow **bicycle-riding**; but in such cases the exercise is usually only the exciting cause, and some underlying condition generally exists. This condition is a gonorrhea lurking in the glands and crypts of the urethra, irritated by uric acid.

H. W. Webber[4] reports a case in which death occurred 15 hours after passing a **catheter.** The man was 57 years of age. There were no symptoms of uremia, and death was apparently due to **reflex cardiac failure.**

S. Baumgarten[5] reports the case of a man who had a very tight stricture of the urethra, due to gonorrhea. The stricture was dilated to No. 13 F., but could not be dilated further. **Calculus** in the bladder was discovered by sounding. Perineal section was performed, the stone removed, and the strictured portion of the urethra excised. Cure resulted.

Gwilym W. Davis[6] believes in the operation of **internal urethrotomy,** even for deep strictures. He has had no trouble from hemorrhage. The fear of urinary fever and sepsis is largely a legacy from former days, and it is practically eliminated today. Davis is not ready to admit that urinary fever is always infectious. Chills sometimes arise too quickly after instrumentation to be septic. Nervous disturbance is a factor in producing such chills. If a catheter is kept in the bladder for 3 days, urinary infiltration cannot occur. Before operating, the urine should be rendered antiseptic.

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[1] Boston M. and S. Jour., July 7, 1898.

[2] Med. Rec., Aug. 20, 1898.

[3] Med. News, Oct. 1, 1898.

[4] Brit. Med. Jour., Mar. 4, 1899.

[5] Ann. des Malad. des Org. genito-urin., Dec., 1898.

[6] Univ. Med. Mag.,' Aug., 1898.

G. Frank Lydston[1] writes on **traumatisms of the urethra.** As a rule, the results of severe traumatism are: 1. Hemorrhage; 2. Retention of urine; 3. Urethritis; 4. Cellulitis and gangrene; 5. Extravasation of urine, causing cellulitis, gangrene, or peritonitis; 6. Septicemia; 7. Remote results (stricture, fistula, false passages from attempts to introduce instruments). Hemorrhage is rarely dangerous in amount, because the wound is lacerated and because ecchymotic swelling arrests it. Retention of urine can always be relieved surgically. The danger of extravasation depends on the condition of the urine. Normally, urine which can freely escape does no particular harm. Septic urine or urine pent up may do great damage. After a urethral injury give antiseptics by the mouth and use them locally (local irrigations with boric-acid solution, and salol or eucalyptus by the mouth). If severe hemorrhage occurs, perform perineal section, arrest bleeding by packing, and drain the urethra.

J. Henry Dowd[2] points out the importance of making an **early diagnosis** in urethral stricture, because if a stricture can be treated before the deeper tissues become involved, there is every hope of a complete and permanent cure. A stricture to produce the symptoms ordinarily given in books is from 3 to 7 years old. A twisted or divided stream may occur when there is no stricture, and may be absent in stricture of the deep urethra; according to Hutchinson, 67 % of strictures are in the deep urethra. When a morning discharge following a gonorrhea has ceased, it will not return as a symptom of stricture for from 4 to 5 years, and not even then if the individual is moderate in his way of life. "When diminution of the urinary tube is marked, say about No. 7 to No. 10 F. in size below the normal, the dilatation behind or in front of the contraction, by constant irritation, becomes inflamed to such a degree that, during the night's rest, pus or mucopus is secreted in sufficient quantity to form a drop, this making its appearance at the meatus. The increase of urination, especially at night, cannot occur until the anatomy behind the compressor is involved. In the great majority of cases this rarely occurs for years, providing the acute involvement (at the time of gonorrhea) had been entirely cured. The earliest diagnostic symptom of urethral contraction, and one that is more positive than the urethrometer or bulbous bougie, is the appearance of shreds in a clear or semiclear urine, especially the first. The origin of these shreds is from the same locality as the morning pus or mucopus, but they make their appearance early, when the inflammation has not attained sufficient strength to manufacture pus-cells in quantities sufficient to form a drop. If these shreds are examined microscopically, they will be found to consist of pus-cells and various pyogenic bacteria held together by mucus and degenerated epithelium. At first these shreds may be almost imperceptible to the naked eye, but their presence will be constant from the time of submucous involvement. As the canal is lessened in caliber they become larger, at times appearing like pieces of string. The earliest appearance of urethral desquamation, denoting submucous inflammation, is about 3 months after an acute gonorrhea. In every case of specific urethritis, stringy substance will be found in the urine as the case approaches recovery. This comes from the folds of the mucous membrane, and will entirely disappear, providing the cure is complete. This must not be confounded with the shreds appearing in a clear urine months or even years after gonorrhea. The secondary changes due to urethral obstruction are so well described in most textbooks dealing with genitourinary diseases, that it is unnecessary to say further than that when pathologic changes occur in the prostate, bladder, kidneys, or even the heart, the case can be little benefited, even after the obstruction has been removed. It is a grave question to decide whether it is possible to eradicate a stricture, except possibly by urethrotomy, and then not unless long-continued after-dilatation is practised. This leads to one conclusion: Promote absorption of submucous hyperplasia. (*a*) Never discharge a case of gonorrhea as cured until the morning urine is clear of debris. (*b*) Keep the patient under observation for at least 6 months, in order to be able at once to detect localized inflammation by urinary shreds, should they appear. There is another condition in which these shreds give valuable aid, long before the appearance of textbook symptoms, and months after the supposed cure of a gonorrheal inflammation. The patient, after any excess known to cause genitourinary congestion, sees a drop at the meatus. If he has had sexual congress the woman in the case is accused of infecting him, and in his opinion one more is added to his attacks of gonorrhea. Although many cases of this nature are treated as gonorrhea, a microscopic examination would reveal no gonococci. If the urine is inspected visually, it will be found clear, or almost so, but containing the shreds indicating contractions in the canal. The moisture, or drop, simply shows that the chronic inflammation which always exists behind these contractions has taken on an acute form." Upon the discovery of the urethral debris, dilatation should be advised. No. 30 F. is the standard size to dilate to. Before sounding, irrigate with 0.33% formaldehyd solution, and, after sounding, with a 1:500 zinc solution. For this purpose a syringe of a capacity of from 4 to 6 oz. is used. The author cites some instructive cases. His conclusions are as follows: "1. Textbook symptoms of stricture are misleading, and do not occur until the contraction has existed for years. 2. Symptoms or no symptoms, shreds in a clear or semiclear urine indicate urethral contraction. 3. The early discovery (3 or 4 months from time of infection) of these shreds may be followed by the entire obliteration of their cause. 4. Always give the patient the sensation of urination when using a sound. 5. Formaldehyd irrigation preceding and zinc solution following a sound is advisable in every case, and may sometimes save a life."

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[1] Railway Surgeon, Dec., 1898.

[2] Phila. Med. Jour., Mar. 11, 1899.

M. Carlier[1] reports some cases to prove that **epididymitis** may arise as the first symptom in the course of stricture, the urethral infection about the stricture being responsible for the condition. In the cases reported by Carlier there had been no difficulty of micturition or other symptoms of urethral constriction.

Reginald Harrison[2] says that cases of stricture are sometimes encountered in which, because of the urgency of the symptoms or the nature of the stricture, ordinary plans of treatment prove futile. Those cases of

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[1] Gaz. hebdom. de Méd. et de Chir., Jan. 26, 1899.

[2] Lancet, Aug. 6, 1898.

advanced stricture to which Harrison refers owe their urgency to their being complicated with some degree of **retention** of urine, which must be relieved surgically. Suppose a man of middle age, who has long suffered from and neglected a stricture. Eventually he is suddenly seized with inability to pass urine or he chronically suffers from the incapacity to empty his bladder completely. Let us suppose the stricture is hard and tortuous, resists hot baths, opium, and catheterism with all sorts of flexible instruments, and nothing will pass but a metallic catheter of small diameter, and it may require anesthesia to pass this. If such a catheter is tied in, it may slip out at night, and it is certainly difficult and may be impossible to replace it. Even if it is retained, it may be impossible to pass a larger one. It is not desirable to retain a fine catheter in a septic bladder, because it is not possible to disinfect the bladder through it. Puncture, urethrotomy, or cystotomy is not always advisable. In such a case the surgeon would obtain a great advantage if he could expand the metal instrument after its introduction and stretch the stricture before withdrawing the instrument. Harrison has devised an instrument for use in such a case: "It is provided with a pilot-guide, as well as with a screw top, in case the former proves useless. It contains a fine test-catheter, on which the dilators run. It is fitted with a series of 7 rods, by which dilatation may be carried from a No. 3 to a No. 12 (English gauge), and the introduction of the latter is controlled by a spiral spring which consolidates the instrument and makes it act as 1 piece. On the dilator being passed, as an equivalent to a No. 3 catheter, the stylet is withdrawn, and the correct position of the instrument is judged of by its transmitting urine and from its position relative to the rectum. Then the introduction of the dilating rods in accordance with their number and size is proceeded with while the anesthetic is continued. This is to be done deliberately, so as to stretch and not to lacerate the stricture, the process usually lasting, according to the rigidity of the contraction, from about 10 to 20 minutes. When the largest rod is reached the fully distended instrument, now representing No. 12 in caliber, is withdrawn, and the urine that remains is drawn off by a full-sized silver catheter, which may be passed easily. The bladder is then washed out and disinfected, and a soft catheter is tied in and retained for 48 hours or so. As the process is one of stretching alone, rigors or fever rarely follow. The subsequent management of the case merely consists in instructing the patient how and when to pass a bougie for himself, and so to endeavor to maintain permanently the normal dimensions of his urethra. It is hardly necessary to illustrate the kind of case to which

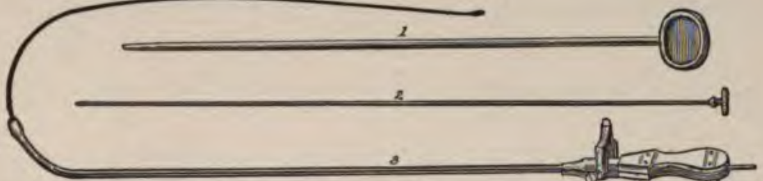

FIG. 36.—Reginald Harrison's instrument for stretching urethral strictures: 1, dilating-rod; 2, catheter-stylet; 3, dilator (Lancet, Aug. 6, 1898).

this treatment is applicable, as it will readily occur to those who have had practical experience of them. In proceeding to adopt it, the only drawback which is likely to happen is the case proving, on trial with an anesthetic, to be an impassable stricture. Under such circumstances Wheelhouse's perineal operation would probably be selected as the alternative. Where, however, the dilator can be passed in the manner I have endeavored to describe, both patient and practitioner will be none the worse for knowing that the retention of urine has been relieved in such a way as will permit the introduction of a full-sized catheter into the bladder."

Orville Horwitz[1] has modified the operation of **perineal section,** simplifying it and using certain new instruments. He says it is often difficult to find the urethra when we are operating for tight stricture, with or without rupture of the urethra. "The operation for perineal section is a modification of that known as the 'Wheelhouse,' and is a simplification of that procedure by the substitution of a perineal staff of my own contrivance. The technic is entirely changed. It will be observed that Fig. 38 consists of 2 blades (*c*) in close approximation, which together form a smooth staff, with a thumb-screw (*a*) at one end, by means of which the blades may be readily separated. It works upon the same principle as the Otis dilating urethrotome, an instrument familiar to all. The distal end of the staff terminates in a rounded nut (*e*), which can be removed and replaced by a whip filiform, as is shown in Fig. 39. By examining Fig. 39 (*d*), an opening in the nut at the end of the staff will be observed, which leads into a tunnel through which an ordinary whalebone filiform can be passed (Fig. 37 (*f*)). The filiform is employed when it is not possible to insinuate the whip-bougie, it being frequently the case that the former instrument can be introduced when the passage of the latter cannot be achieved; so that it will be observed the staff can be used with either an ordinary filiform or with a whip-bougie, or even without a guide. When it is possible to introduce the whip-bougie through the stricture, it is to be fastened to the perineal staff in the manner shown in Fig. 39 (*b*). The blades of the instrument are closed,

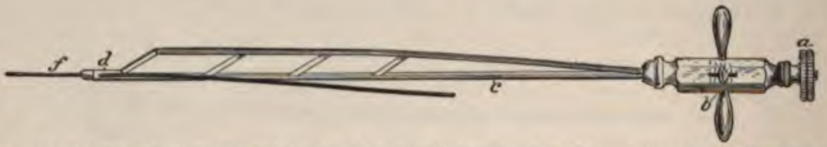

FIG. 37.—Horwitz's dilator over a filiform bougie; blades separated (Jour. Cutan. and Gen.-Urin. Dis., Aug., 1898).

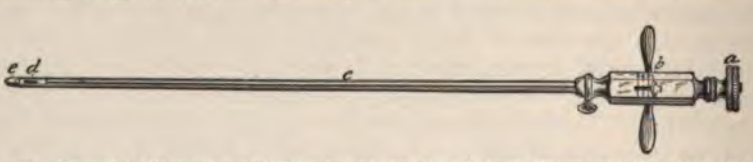

FIG. 38.—Horwitz's dilator for whip-bougie; blades closed (Jour. Cutan. and Gen.-Urin. Dis., Aug., 1898).

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[1] Jour. Cutan. and Gen.-Urin. Dis., Aug., 1898.

as in Fig. 38, and the staff is passed into the urethra until arrested by coming in contact with the shoulder of the stricture. The whip-bougie being pushed in front of the staff, reaches the bladder and curls up, and when the urethra is opened serves as a guide to the operator, as it is inserted directly through the stricture. In case the whip-bougie cannot be passed through the stricture, a whalebone filiform is to be inserted; the tunnel at the end of the staff is threaded over the filiform and introduced into the urethra until arrested at the contracted portion of the canal. An assistant turns the thumb-screw (Fig. 38) and separates the blades, as shown in Fig. 39. The amount of separation is noted by an indicator on the handle of the staff (Fig. 37 (*b*)). When the blades are separated, the urethra in front of the stricture is not only fixed, but is made prominent, and the operator, after making the incision through the skin, can readily open the urethra with absolute precision and ease. The separation of the blades of the staff fixes the urethra and serves to hold it steadily. When the staff is in position, with the blades expanded, the location of the urethra can be readily detected by palpation over the tissue of the perineum. The objection to employing the staff of Wheelhouse is that the urethra remains movable, and that if an effort be made to open the canal, the tissues are liable to roll from under the edge of the knife, making an incision difficult and at the same time misleading the operator. When the filiform is employed in conjunction with my staff, instead of the whip-bougie, the urethra can be readily detected, and when incised it will be found passing through the stricture, and can be traced without difficulty to the entrance of the bladder. If the stricture be impassable and the operation has been performed without a guide, the staff is to be passed, with blades closed (Fig. 38), down to the seat of the contraction; when this point is reached the blades are to be separated, the urethra fixed and made prominent, when the urethra can be opened in front of the stricture by a few touches of the knife." The author then describes in detail his plan of operation.

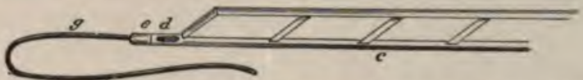

FIG. 39.—Horwitz's dilator over whip-bougie: blades separated (Jour. Cutan. and Gen.-Urin. Dis., Aug., 1898).

Delore[1] says that in **tuberculosis of the testicle** an exploratory incision should be made, and the diseased tissue removed by partial resection of the gland. To be sure the testicle is sound we must incise it on its convex border, because the surface may look sound when there is disease deeper in. Even a small portion is of value sexually, and should be allowed to remain if possible.

Lenz[2] reports on the use of **guaiacol in epididymitis.** He usually employs 10% of the drug in petrolatum; but if the scrotum is irritable uses only a 5% ointment. Before applying it the scrotum is first washed with soap and water and then with ether. It is most useful in the acute stage. If used in the acute stage, the pain, swelling, and fever disappear in from 3 to 5 days. After the acute stage is over, use instead of guaiacol ointment of belladonna (1% to 2%) mixed with equal parts of simple ointment and diachylon ointment. Salol is given internally, in doses of 15 gr., 3 times a day. After guaiacol is applied, it appears in the urine in from 15 to 30 minutes.

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[1] Centralbl. f. d. Krankh. d. Harn. u. Sexualorg., Jan. 21, 1899.

[2] Brit. Med. Jour., No. 1952.

F. R. Sturgis[1] asks the question, **Are complete castrates capable of procreation?** His conclusions are as follows: "1. In animals, for a varying period after complete castration, normal spermatozoa are found in the contents of the seminal vesicles. 2. This period varies in different animals, being 6 days for the dog, 7 days for the cat, and 14 days for the guineapig. 3. In man, clinical cases are recorded in which fecundation of the female has occurred after coitus with the male who has been completely castrated; but in accepting the correctness of such statements, we must remember the adage that accidents may happen in the best-regulated families. Still, Punceteau's case (if correct) proves that spermatozoa do exist for a certain time in the seminal vesicles of a eunuch, and, arguing from analogy in what occurs in animals, this is quite probable. 4. Still pursuing the analogy, in man, as in the dog and cat, a complete castrate *may* be capable of procreation provided the coitus occurs within the first 7 days after the castration."

Hauser[2] discusses **varicocele** as an occasional **symptom of renal cancer.** Guyon has spoken of this symptom. If a varicocele appears in a person who is of more advanced age than is usual for this condition to appear in, we should suspect renal growth. The varicocele appears on the side of the diseased kidney. Such a varicocele increases in size more rapidly than does an ordinary varicocele. This condition is probably produced by the pressure of the tumor and of enlarged glands on the spermatic veins, and, as it indicates that the growth is spreading, may influence our decision as to the advisability of operation.

Winkelmann[3] has devised an operation for **hydrocele.** He performs it under Schleich's infiltration-anesthesia. An incision is made over the upper portion of the sac, the testicle is turned out, and the vaginal tunic is stripped off and turned inside out. A couple of stitches are passed to prevent the testis again entering its sac. The testis and everted tunic are restored into the scrotum, and the skin-incision is sutured. Adhesions form, and radical cure results.

DISEASES OF THE BLADDER, PROSTATE, AND SEMINAL VESICLES.

E. Lexer[4] writes on **fistula of the urachus.** He says the congenital form of the trouble is usually due to some slight obstruction to the flow of urine in the natural channel (phimosis, urethral contraction, a fold in the mucous membrane of the bladder), and is often cured by simply relieving the obstruction and scraping and cauterizing the fistula, but in other cases it may be necessary to resect the urachus. An acquired fistula is harder to cure. Luschka cured a case by cutting off the fistula from the fundus of the bladder and suturing. A congenital fistula should be treated soon after birth, any obstruction being removed, and the orifice of the fistula excised and sutured. If such simple means fail, wait until the patient is older, and then do a more radical operation. The radical operation is not safe in infancy, as it may be necessary to open the peritoneal cavity. [Témoin believes the only treatment which will really cure consists in completely extirpating the mucous lining of the sinus and suturing the communication with the bladder. The sinus itself can be completely removed.]

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[1] Med. News, Oct. 8, 1898.

[2] Jour. de Méd., Nov. 10, 1898.

[3] Centralbl. f. Chir., Nov. 5, 1898.

[4] Langenbeck's Archiv, Band lvii., Heft 1.

Coplin and Horwitz[1] write on tuberculosis of the bladder. Coplin discusses the pathology of the condition, and reports a case in detail. Horwitz believes that guaiacol and creasote given internally are of benefit in **tuberculous cystitis.** If the urine contains pus, urinary antiseptics should be given, provided the kidneys are free from disease and the quantity of urine is not below normal (salol, boric acid, methylene-blue, etc.). If the urine is loaded with pus, wash the bladder twice daily, introducing by hydrostatic pressure normal salt solution, boric-acid solution, or a solution of sodium salicylate. Horwitz advocates the performance of suprapubic cystotomy in these cases, which not only affords drainage and permits thorough irrigation, but also gives access to the disease. An ulcer should be curetted or cauterized.

Reniac[2] reports a number of cases of **vesical tuberculosis** treated by the instillation of 1 oz. of liquid vaselin containing 25 gr. of iodoform. This oily material floats upon the urine. When the patient micturates, the water at first runs clear, but toward the end of the act oil appears. When the oil appears the patient stops micturating. By this plan the iodoform is retained in the bladder for many days. When it disappears more is injected. Iodoform thus used greatly mitigates pain and tends to heal ulcerations. He treated 14 patients: 7 were greatly improved; 6 were moderately benefited; 1 was not improved.

Charles Greene Cumston[3] says tuberculous cystitis may occur in children. The symptomatology in children is often marked. He reports a case which was apparently cured (ulcers cauterized once a week, through Kelly's tube, with 60% lactic acid; 20 cc. iodoform-glycerin emulsion [15%] injected every 4 days for 7 weeks; given cod-liver oil, tonics, nourishing diet). "In children, incontinence from **pollakiuria** is the most **prominent symptom** of tuberculous cystitis; but hematuria, pyuria, and pain may also be present. Pain varies in different cases, and often is wanting, or at least appears to be, because we must be careful not to be misled on this point, for little children cannot tell us exactly what they feel. Severe pain will make them cry, while they do not pay much attention to little, dull pains or burning sensation, as would the adult. It may, however, be said that pain sufficient to make the child cry is never so persistent that sleep is entirely prevented. Hematuria appears to be an infrequent symptom in tuberculous cystitis in children, and does not show itself at the beginning of the trouble, as it does in adults. Pyuria, on the contrary, is important in little ones, and Guyon has insisted upon the necessity of a careful analysis of the urine, because if it contains pus, the incontinence present is not due to a neurosis. Consequently, in both children and adults, the urine in tuberculous cystitis is most always purulent, but it is so in varying degrees; but in rare exceptions it may remain perfectly clear, and is passed in large quantities—a fact that may cause much difficulty in diagnosis. In all cases of suspected cystitis a careful bacteriologic examination of the urine should be carried out. The microscope will reveal pus-cells and red blood-corpuscles; while chemical analysis will often show the presence of albumin, due either to the pus or to lesions of the renal gland. The search for Koch's bacillus will often be negative, but should be often repeated, and finally we can perhaps discover the organism, which, when found, will settle all doubts as to the nature of the affection. Inoculation of the pus contained in the urine, or the urine itself, into animals, especially the guineapig, should always be resorted to, and the presence of the specific bacillus may thus be demonstrated when the microscope and culture-tubes have remained negative. One inoculation is not enough, and several animals must be employed, each one receiving a different sample of the urine."

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[1] Jour. Cutan. and Gen.-Urin. Dis., Dec., 1898.

[2] Gaz. hebdom. de Méd. et de Chir., Jan. 29, 1899.

[3] Boston M. and S. Jour., Dec. 22, 1898.

Picqué[1] writes on the removal of **foreign bodies** from the female bladder. Urethral extraction should not be attempted, on account of the danger, if the body has sharp points, if it is very irregular in outline, or if it is large and cannot be crushed. If it is necessary to cut, in most instances the incision should be through the vagina. If the body is known to be large, but of unknown form, and especially if the patient is a young girl with an intact hymen, the incision should be suprapubic. In a good many cases of foreign body in the bladder the cystoscope gives valuable information; but it is practically useless if the bladder is much contracted or the body is very large.

Eugene Fuller[2] reports a case of recovery, with restoration of vesical function, after **total extirpation** of the **prostate** and **resection** of the **bladder** for malignant disease. He believes that in many cases of malignant disease of the prostate radical extirpation should be attempted, but says: "There is no doubt that radical surgical interference is contraindicated if the disease has become extensive enough to involve the rectal wall, the postperitoneal lymphatics, the seminal vesicles, and the posterior bladder-wall beyond the trigonum. If, however, such is not the case, then I hold the attempt should be made to remove the structures that are the seat of disease, unless perhaps the subject is a child, for in children malignancy in this region is so rapid in its progress that no radical operation is likely more than very temporarily to stay its progress." In Fuller's case the bladder was opened by the suprapubic route. The vesical wall and prostate were found involved in an infiltrating growth. "The bladder-wall involved was chiefly the lower portion lying directly over the prostate. The wall posterior to this was normal to the touch. The infiltration had, however, extended upward, so that the anterior wall to either side of the urethral outlet was somewhat infiltrated. I determined to remove the involved bladder-wall and the prostate. Accordingly, with a serrated pair of scissors, such as I use in prostatic operations, a more or less circular incision was made through the vesical wall. The circumscribed part included the involved area and the area about the urethral opening. With the forefinger I then gradually dissected up the circumscribed vesical wall and the adherent prostatic body. Great care had to be taken in doing this not to tear the rectum. The prostatic urethra, at its commencement, had to be cut across. In extracting the mass, which came away in several pieces, I accidentally tore the vesical wall from the anterior margin of the wound up to the lower margin of the suprapubic vesical incision, so that the under surface of the pubic bone could be felt by the finger introduced through the suprapubic incision, there being, as it were, no anterior vesical wall. A perineal incision for dependent drainage was then made. The vesical wall about the suprapubic incision was securely fastened to the abdominal wall, a free space for suprapubic vesical drainage being left. Several silkworm-gut sutures served to close the upper portion of the abdominal incision. The bleeding, which was quite free, was largely checked by hot vesical lavage. No attempt was made to draw into apposition the bladder-wall so as to close the space previously occupied by diseased tissue. The anterior vesical wall was also not closed by suture."

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[1] Bull. et Mém. de la Soc. de Chir., No. 28, 1899.

[2] Jour. Cutan. and Gen.-Urin. Dis., Dec., 1899.

W. Jepson[1] describes a device for regulating **inflation of the bladder** by air. It regulates the force with which air enters, determines the amount used, and allows the air to be partially displaced if increased tension occurs. Jepson's apparatus "consists of a stand having 2 movable platforms, upon which rest the 2 bottles used, which are graduated by ounce-marks for easy determination of their contents. Each has a spigot at the bottom, by which the two are connected by means of a properly-fitting rubber tube about 3 in. in length, which has a clamp for closing the tube. One of the bottles is filled with water; the other bottle is fitted with rubber cork, air-tight, and fixed sufficiently rigid to withstand the required pressure. The cork has 2 perforations, into which are fitted 2 small glass tubes, to 1 of which is attached a rubber tube of sufficient length to connect with a gum catheter introduced into the bladder. The connection between this tube and the catheter I make with the glass portion of a medicine-dropper, that may be packed full of sterilized cotton, which will filter the air before it enters the bladder. The other fitting I connect with the pressure-gauge, in this instance the glass **U**-tube filled with mercury, graduated to show pressure used per square inch, which has been accurately determined. The advantage of using this gauge is that one will be guided more by the pressure used (the normal bladder, according to my observation, receiving about 10 oz. of air under a pressure of from $\frac{1}{2}$ to $\frac{3}{4}$ pound pressure per square inch). If only 5 oz. were received under that pressure, we should suspect hypertrophy of the bladder-wall, with its possible attendant sacculation, and consequently know that we were treading upon dangerous ground, and desist in further distention. The use of this pressure-gauge is certainly not essential, but when used will largely lessen the danger of rupture. I shall briefly describe its practical use: I first irrigate the bladder thoroughly with a Thiersch or other solution, as may be indicated, after which the bladder is emptied, the catheter (soft gum) is left in position, the rubber band being slipped around the penis to retain the catheter. The platform upon which rests the bottle (No. 1) containing the water is now elevated above the other about 18 in., the clamp upon the rubber tubing connecting the 2 bottles opened, and the water permitted to enter the lower bottle (No. 2) until it reaches the point at which the graduating of the same begins. The connection between the 2 bottles is now closed, and the connection between the bottle (No. 2) containing the air and the bladder is now made by inserting the glass tip (No. 3) into the catheter. The clamp is again opened, and is not closed until the operation is over, for if this is done the air will be rigidly confined in the bladder, with increased danger of rupture. When the required amount of air has entered the bladder, determined by the amount of air displaced (I have used about 10 oz.) or pressure employed which is deemed safe (possibly not over $\frac{3}{4}$ pound to the square inch), the platform containing the bottle No. 1 is permitted to descend till the force of the bladder and the column of water are equal, easily observed by the fact that no more air is being displaced, the platform is fixed, and the operation may be proceeded with."

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[1] Ann. of Surg., Sept., 1898.

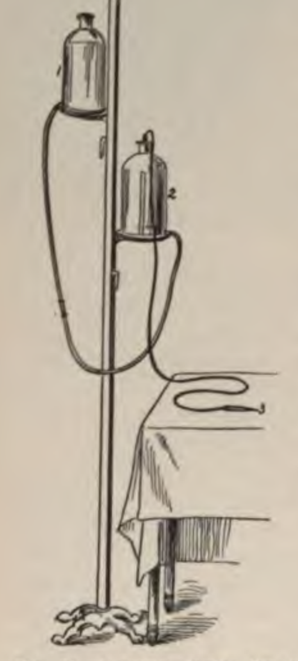

FIG. 40.—Jepson's device for inflating the bladder with air (Ann. of Surg., Sept., 1898).

C. Mansell Moullin [1] opposes the general view as to the causation of **urinary fever** at the beginning of catheter-life. The usual view is that the condition is due to the sudden change from a natural to an artificial method of micturition, and that the removal at each catheterization of all the residual urine in the first days of catheter-life is especially injurious. Moullin presents reasons which seem conclusively to prove that bacteria are the cause, and the symptoms are those of septicemia. The instrument used must be asepticized by boiling; but even with this precaution infection may occur, because the catheter pushes before it into the bladder bacteria from the meatus and urethra. The hands, the prepuce, and the skin of the penis must be washed with soap and water, and then with corrosive-sublimate solution (1 : 5000). The glans and meatus are carefully cleansed. An irrigating catheter is introduced into the fossa navicularis, and this part of the tube is washed from behind with boric-acid solution. The irrigator is pushed into the deeper part and the tube is irrigated. Melchior's double catheter is introduced and the urine is drawn off. Moullin uses lanolin for a lubricant. "Afterward, and in the case of an old man with enlarged prostate, I try to enforce the same precautions as far as possible; but when catheters have to be passed at frequent intervals, the disinfection of the hands, penis, and front part of the urethra will manifestly never be carried out each time. At the outside, it will only be done night and morning, and often one has to be content if it is done thoroughly once a day. But catheters can be kept clean. Those made for me by Messrs. Maw, Son & Thompson, as smooth and as polished on the inner surface as they are on the outer, which were described in *The Lancet* of July 6, 1895, will stand boiling day after day

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[1] Lancet, Sept. 10, 1898.

(if they are kept straight while in the boiling water and drained afterward) and continued immersion in boric acid without injury. Each patient is provided with 2 of the glass catheter cases devised by Nicholl. One of these is filled with boric-acid solution for instruments that have been used; the other, provided with a rubber cork as well as a metal cap, is dry and aseptic. These cases are so arranged that they can be hung up in the patient's wardrobe, out of sight and out of dust. No catheter is used more than once a day. As soon as a catheter is withdrawn from the urethra, it is dropped into the case filled with boric-acid solution and left there. Once a day all the catheters are taken out, boiled for 5 minutes, and placed in the dry case until required. Unfortunately patients are not all intelligent, and in the case of a hospital outpatient such a complicated plan is out of the question. The best that can be done is to start such people as well as possible, and to hope that by degrees they will acquire a certain amount of immunity against the toxins they are bound to absorb. There is a little evidence to show that a certain degree of immunity may be acquired, but I am very skeptical as to its ever being sufficient in the face of a virulent growth, or when the Bacterium coli is assisted by other germs, such as the streptococcus and the proteus."

Reginald Harrison[1] reported to the Royal Medical and Chirurgical Society 2 cases in which **multiple calculi** were removed from large, narrow-necked sacculi connected with the male urinary bladder. In the first case, in a man of 56, a small stone was recognized by sounding, and was crushed; but as this calculus did not account for the symptoms, median perineal **cystotomy** was performed. A sac was found to the left of the prostate, containing 34 stones, which were removed. A drainage-tube was inserted in the sac. A perineal fistula persisted. A suprapubic cystotomy was performed, and an attempt was made to drain the bladder by that route, but the fistula persisted. The patient died 4 years after the first operation, with the fistula still open. The second case was in a man, aged 50. He was found to have stone, and **litholapaxy** was performed. It was found that a large sac came from the bladder, and could be catheterized independently. About 10 months later the patient developed very acute cystitis. Suprapubic cystotomy was performed. The lateral lobes of the prostate were found to be enlarged. The mouth of the sac opened below the right ureter, and the sac was full of foul, purulent urine, which was washed out; it contained several calculi, which were removed. A tube was inserted into the bladder and one in the pouch. In 3 weeks the patient was out of bed. About 2 months after the operation he developed rigors and fever. The wound was opened, the intention being to drain the sac through the perineum. This was found to be impossible because of the relation of the sac to the large vessels. Prostatectomy was performed, and the patient was much improved. Harrison believes that most of these cases are best treated by suprapubic cystotomy, to explore and remove stones, and drainage of the sac through the perineum. In the debate, Bruce Clarke said that in 1 case he had been able to catch the sac-wall and evert it into the bladder, and keep the forceps in place for several days. The sac was apparently obliterated. Clarke advocated the suprapubic operation. Bryant advocated the perineal rather than the suprapubic cut, believing that the former affords better drainage.

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[1] Lancet, Apr. 1, 1899.

C. Abot[1] does not believe that stone is especially likely to recur after litholapaxy, and says that when recurrence takes place, it is due to diathesis or some local condition. He believes litholapaxy to be in general the best and safest operation, and to be also, as a rule, completely curative.

George Chismore[2] has devised a **lithotrite** which enables the surgeon to apply great power when attempting to crush a large or very hard stone. The instrument shatters the stone by repeated sharp blows, and it was suggested by the way an automatic rock-drill penetrates hard granite. It consists of a light hammer, acted on by a spiral spring enclosed in a cylindrical tube fitted to the external end of the male blade of a lithotrite.

Reginald Harrison[3] makes a report on the surgery of **vesical stone,** based on a recent series of cases. Of the 101 litholapaxies, 6 patients died. Of these 101 cases, 23 were known to have had no recurrence of stone. Counting the additional operations done on these patients, there were all together 174 crushing operations, with 6 deaths. If we exclude 4 cases occurring below the age of puberty, the average age of these patients was over 62 years. Sometimes, but not very often, recurrence is due to incomplete removal of fragments. In a patient with an enlarged prostate, especially if he uses a catheter, the bladder must be attended to for some months after operation, if we would prevent recurrence. It should be washed out by means of an evacuator at least once a week. The local use of silver nitrate tends to prevent the formation of phosphatic concretions. If stones recur in a patient who has serious symptoms of prostatic hypertrophy, vasectomy should be performed on one vas immediately after the litholapaxy. The other vas can be resected in one week. Harrison does not particularly approve of the suprapubic operation for large stones in elderly men. It is much safer in younger people. The mortality is considerable in people over 50. The cicatrix often interferes with micturition, and may be a basis for phosphatic deposit. Perineal lithotrity has certain points in its favor. By this operation the surgeon can crush and evacuate a large stone in a brief time. It is much safer, especially in the old and feeble, than lateral or suprapubic lithotomy; let the surgeon use a large evacuator and wash out any pouch that may exist; thoroughly explore to see that *débris* is cleared out, and deal with certain forms of prostatic hypertrophy. By the use of subsequent drainage cystitis is improved or cured.

Edward L. Keyes[4] writes on the **urinary distance** as a diagnostic factor in prostatic hypertrophy. His conclusions are as follows: "1. The urinary distance varies in the adult healthy male from something over 6 in. to something under 10 in., but may be averaged at 8 in. 2. The shorter lengths are found in short individuals having a small penis. A large organ naturally contains a long urethra, and this is most certainly the case if the individual be tall. 3. The age of the individual seems to cause a very moderate increase in the urethral length, irrespective of disease, or perhaps even of individual size. 4. In prostatic hypertrophy the urinary distance averages more than 8 in., and is longer in cases of peripheral general hypertrophy than when the enlargement is median, or in cases of bar. 5. In a doubtful case a consideration of the urinary distance may become an important element of diagnosis."

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[1] Boston M. and S. Jour., Sept. 29, 1899.

[2] Jour. Cutan. and Gen.-Urin. Dis., Oct., 1898.

[3] Lancet, Nov. 12, 1898.

[4] Am. Jour. Med. Sci., Aug., 1898.

Arthur Cabot,[1] in a paper on **prostatic obstruction,** showed that occasionally the benefit derived from orchidectomy is not permanent. He is inclined to favor orchidectomy in cases in which there is much enlargement of the prostate with increasing symptoms of obstruction. He favors prostatectomy when the gland does not appear to be much enlarged, but there is early and marked obstruction (valvular obstruction). The number of cases requiring operation is greatly diminished by the proper use of the soft catheter.

Parker Syms[2] writes on **prostatectomy.** He thinks the best operation is that of enucleation, after the plan of Alexander. He proposes the following modification: "A laparotomy should be performed, entering the peritoneum just above the vesical fold, by an incision large enough to permit the operator with 1 hand to press the enlarged prostate well into the perineum without opening the bladder. Then the rest of the operation should be performed in the manner already described. With our present methods this would add but little to the shock of the operation, and, if successful, it would detract very much from the dangers following the operation, for the abdominal wound would, of course, be closed immediately, and the treatment of the case would be but little more than the treatment of any ordinary case of perineal section. The abdominal wound should close primarily, and, being small, should permit the patient soon to be gotten out of bed. Irrigation and drainage of the bladder may be satisfactorily and easily accomplished from the perineal opening, and the ultimate convalescence of these patients should be much shorter than when the suprapubic opening exists."

James H. Nicoll[3] thinks that some of the reports regarding **vasectomy** and **orchidectomy** are misleading. It is possible to have spontaneous improvement, and benefit does not always follow the operation. Nicoll believes in prostatectomy by his method of enucleation through the perineum, favored by pressure of the fingers introduced in the bladder through a suprapubic incision. Nicoll says this method has the following advantages: 1. Avoidance of infiltration by septic or putrescible urine of the cavity left by a thorough enucleation of the prostate. The cavity is a considerable one, and is, in the recumbent position, not well situated for drainage. By preserving intact the base of the bladder and the urethra no urine enters it. 2. Adequate removal of the prostatic tissue. With a bougie in the urethra, and 2 fingers in the bladder pressing the prostate down into the perineal wound, the parts can be defined and the removal effected in a systematic manner. 3. Less hemorrhage. The amount is usually inconsiderable, and is readily controlled by packing the cavity left. 4. Avoidance of the risk of tearing out portions of the neck of the bladder or of the urethra, with the subsequent risk of either incontinence or stricture on the one hand or of urinary fistula on the other.

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[1] Jour. Cutan. and Gen.-Urin. Dis., Aug., 1898.

[2] Ann. of Surg., Mar., 1899.

[3] Brit. Med. Jour., Oct. 29, 1898.

Hoffmann[1] writes on **operations** for **prostatic hypertrophy** performed in Mikulicz's clinic. He considers castration, vasectomy, ligation of the spermatic cord, and section of the spermatic cord. In 24 cases one or other of these procedures was employed, and there were 5 deaths—a large mortality. The majority of the cases were not improved. The author says these operations are often followed by improvement, which, however, may only be temporary. Many improvements are due to the rest in bed, careful nursing, and treatment of cystitis. Some of these cases which were not improved were the so-called favorable cases—soft prostates and brief symptoms in people not very old.

Albarran and Motz[2] state that it is not possible to determine by clinical examination in a case of enlarged prostate whether the glandular or intraglandular elements are involved in the hypertrophy. It is only the glandular hypertrophy that is relieved by orchidectomy. Vasectomy produces slow **atrophy of the prostate.** A unilateral operation does not produce sufficient atrophy to relieve the symptoms. Angioneurectomy has been employed 3 times, with success, in conditions of complete retention. In another like case it failed.

Bottini's operation for enlarged prostate has excited considerable interest during the past year. The operation consists of galvanocaustic incision of the prostate. The operation was devised by Bottini of Padua in 1877, and was brought to its present state of perfection by Freudenberg of Berlin. It is performed under the influence of cocain. The instrument is inserted, hooked to the lobe we wish to cut, the cooling appliance is started, and the current is turned on for 10 or 15 seconds to heat the blade, and the cutting is carried out by working the handle-screw. After the cut is made the blade is screwed back into its groove, and the instrument is withdrawn. One, 2, or 3 incisions may be made. It is said that the operation requires less than 5 minutes, is almost free from danger, is followed by but little pain, and that the patient soon gets about. Rydygier[3] does not think that Bottini's operation is entirely free from risk, and says that death may be caused by **sepsis.** Before the operation is employed, it is desirable to know which lobe is enlarged, and this cannot always be determined. Sepsis is especially common when the middle lobe is not enlarged and the incision is made in the lower portion of the gland. It is not yet settled whether a hard catheter should be retained in the bladder after operation. Lohnstein[4] has operated by this method 12 times. He considers the method a success, and thinks it is most suitable in cases of complete retention, because of swelling of the prostate itself. If this operation fails, it leaves no bad result. It is contraindicated if the patient is very old and feeble, or if there is deficient action of the kidneys. Nicolich[5] employs Bottini's operation in cases which are not curable by vasectomy (enlarged prostate projecting into the bladder, rather than general increase in bulk). He has operated on 5 cases; 3 were cured and 2 were improved. Morton[6] advocates the operation, and reports 5 successful cases. Ramon Guitéras[7] advocates the operation. He believes it exposes the patient to little danger, gives great relief, and diminishes the amount of residual urine. A. J. Downs[1] strongly advocates the operation, and reports a successful case. He believes that 3 incisions should be burned into the prostate. Willy Meyer[2] strongly advocates the operation. He has employed it on 12 cases: 6 were cured; 2 were greatly improved; 4 were fatal, 2 from causes independent of operation, 1 remotely from operation, 1 directly from operation. Meyer advises every patient with an **uncomplicated hypertrophy** to submit to the operation, and says if the prostate is very large and soft, ligation of the vasa deferentia should be done several weeks before cauterization, to lessen the danger of thrombosis. Bottini has never observed a recurrence. Meyer describes the technic of the operation. He says, in a series of 57 cases operated on by Bottini, 32 were cured and 11 were greatly improved. Of 164 reported cases, 80 were cured, 44 were improved, 29 were not improved, and 14 were fatal. Leonard Freeman[3] advocates the operation, and reports 2 cases. Eugene Fuller[4] is not sure that the favorable results of Bottini's operation are permanent. The operation should only be applied to those less serious cases in which the bladder has not suffered grave injury and which are free from complications. In most reported cases some residual urine has persisted. The operation has a serious objection: it damages the neck of the bladder more than it does the prostate. The burnt furrows will leave dense cicatrices, which will contract and may cause stenosis of the vesical neck, and thus interfere with vesical function and render prostatectomy, if it becomes necessary, very difficult. Bransford Lewis[5] describes Bottini's operation, advocates it, and reports 3 cases. The same author[6] advocates air inflation of the bladder as a preliminary to Bottini's operation.

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[1] Beiträge z. klin. Chir., Band xix., Heft 3.

[2] Bull. de l'Acad. de Méd., Nov. 29, 1898.

[3] Wien. klin. Woch., Jan. 5, 1899.

[4] Brit. Med. Jour., Jan. 7, 1899.

[5] France méd., Dec. 23, 1898.

[6] Med. Rec., Sept. 17, 1898.

[7] N. Y. Med. Jour., Apr. 29, 1899.

BURNS, ULCERS, AND PLASTIC SURGERY.

Thiery[7] advocates the use of **picric acid** for burns. He denies that its local use produces pain or poisoning.

Lutaud[8] treats **burns** in the following manner: Open vesicles and poultice until the epiderm is separated. Then soak a layer of absorbent cotton in a saturated solution of **potassium chlorate** containing a little glycerin, place it upon the wound, and cover it with oiled silk.

Freudenthal[9] says that in treating **ulcers of the leg,** the most important thing is to change the dressing frequently. A dressing should be changed every day or every other day, and should never be left on over 3 days. For an indurating or sloughing sore curetting, after disinfection or cauterization, is necessary, the patient being kept in bed for 1 week, Freudenthal cauterizing with the actual cautery or with a mixture of common salt and corrosive sublimate. After an ulcer heals, it must be kept under observation to see that it does not break open again. The author opposes the use of rubber bandages and stockings, because they irritate and cause the part to sweat. The best bandage is made of tricot under 5 in. wide. After a few weeks of wear and washing such a bandage ceases to be elastic and must be discarded.

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[1] Phila. Med. Jour., Dec. 24, 1898.

[2] Med. Rec., Jan. 14, 1899.

[3] Denver Med. Times, Dec. 18, 1898.

[4] Med. Rec., Nov. 19, 1898.

[5] Phila. Med. Jour., Dec. 10, 1898.

[6] Med. Rec., Mar. 25, 1899.

[7] Rev. de Chir., Nov., 1898.

[8] Jour. de Méd. de Paris, Nov. 20, 1898; N. Y. Med. Jour., Dec. 31, 1898.

[9] Monatsh. prakt. Dermat., Feb. 1, 1899.

Marcuse[1] suggests a plan of treating ulcers when Unna's treatment is useless (Unna's treatment is the application of zinc-glycerin glue). Among these rebellious ulcers are callous ulcers with sharp, hard edges, and old, neglected ulcers which discharge constantly. To arrest secretion of the ulcer and improve the circulation of adjacent tissues, apply **bandages** wet with **Burrow's solution,** and later use **zinc-glycerin glue.** The solution used consists of 5 parts of alum and 25 parts of lead acetate in 500 parts of distilled water.

George Stoker[2] reports on the treatment of wounds and ulcers by **oxygen gas.** When a case is so treated, after a time a toxic reaction occurs, and after this reaction begins the wound or ulcer starts to heal. Healing takes place most rapidly when the temperature is highest, the wound continues dry and does not inflame, and the discharge remains healthy. Lymphatics near the ulcer inflame and adjacent glands enlarge. In some cases small secondary areas of infection become abscesses, burst, and heal. The general disturbance is slight when the height of the temperature is considered. The author believes that oxygen is of benefit, because it forms an antitoxin from the products of the bacteria or the ulcer. Antitoxins have been made by passing a stream of oxygen over a bouillon-culture of the microorganisms of a particular ulcer. The broth so treated is dropped back into the wound and is absorbed. Results have been satisfactory not only in simple ulcers, but in lupus and rodent ulcer. It is hoped that this road may lead eventually to the successful treatment of malignant disease.

Félix Brunet[3] suggests the following plan for the **removal of tattoo-marks:** Mark out the area for operation with diachylon plaster and anesthetize by cocain, vesicate with ammonia, remove the epiderm, and rub the exposed tattoo-marks with a stick of silver nitrate. Wait 5 minutes. Dress with dressing wet with solution of salt or of boric acid. Change the dressing the next day, at which time the diachylon plaster is removed, the part operated on is dressed with equal parts of iodoform, red-bark, charcoal, and bismuth salicylate, and cicatrization is allowed to go on under this powder.

Franke[4] suggests a method for **closing a great skin-defect** after removing the female breast. He closes this defect with skin brought over from the opposite breast (not the bringing over of the entire opposite gland, as do Leguen and Græve). After clearing out the disease on one side the incisions are taken across the sternum and partly around the other gland. A pedicle must be left going up to the axilla. This flap is dissected from the chest and the gland is removed, leaving only skin. The nipple is taken away, leaving a hole for drainage. The flap is taken to the opposite side and is sutured in place.

J. L. Goodale[5] thus describes a new method for the **operative correction of exaggerated Roman nose:** "The patient was etherized and placed in the Rose position. A pair of short curved scissors with convexity uppermost was introduced into the left nasal vestibule. One blade was made to penetrate the triangular cartilage at its anterior extremity immediately beneath the integument, and a cut was made along the superior margin of both cartilaginous and bony septa, terminating at the junction of the perpendicular plate of the ethmoid with the cribriform plate. The superior margin of the septum was thus separated from the integument and from the nasal bones by this incision, the outline of which was essentially parallel with the angular outline of the bridge of the nose. The extremities of this angular incision were next connected by a straight cut made through the septum with straight scissors, and the portion of septum included between the 2 incisions was removed with forceps. A septum with a straight superior outline was thus produced. The next step consisted in depressing the bony bridge of the nose so that it should rest upon the now straight septum. A small nasal saw was introduced, with the teeth uppermost, into the left nasal passage, and the articulation of the nasal and maxillary bones sawn through from below upward. A similar saw-cut was made through the corresponding articulation on the right side. The nasal bones were thus left articulating only with the frontal bone and with each other. A few comparatively gentle taps upon the nasal bones sufficed to break the frontal articulation and depress them, still firmly united with each other, until they came into contact with the upper margin of the septum. With the depression of the nasal bones, the bridge of the nose assumed a straight line from tip to forehead, but a ridge at the same time appeared on either side, formed by the maxillary bone along the line of the nasal articulation. As determined by me previously in experiments on the cadaver, 2 or 3 light blows with a protected mallet upon this ridge fractured the maxillary bone, which is here very thin, along a line situated about 1 cm. outside the nasal articulation and parallel to it, with the result of depressing the ridge and producing a perfectly smooth and even cutaneous surface."

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[1] Deutsch. med. Zeit., No. 63, 1898.
[2] Lancet, Dec. 10, 1898.
[3] Arch. de Méd. navale, Oct., 1898.
[4] Deutsch. Zeit. f. Chir., Nov., 1898.
[5] Boston M. and S. Jour., Feb. 2, 1899.

Berger[1] makes a report upon Ricard's plan of **grafting living bones.** Berger considers that Ricard's plan is much better than is the use of metallic materials. The bone is eventually absorbed, but is replaced by firm fibrous tissue. The graft had better be taken from an animal than from the patient.

Arthur E. Barker[2] describes the technic of **Thiersch's method of skin-grafting.** A broad, flat razor is used. This is sterilized, not by boiling, which would dull it, but by being immersed in alcohol. During the operation the razor is dipped from time to time in the following mixture: Glycerin, 25 parts; alcohol, 25 parts; and water, 50 parts. Dipping in the mixture lubricates the blade and enables the surgeon to cut thin grafts, which float out over the steel and do not gather into lumps. Grafts are usually taken from the front of the thigh. This part should be carefully cleansed on several occasions. A day or two before operation order a general warm bath, and after this wash the thigh with methylated spirit, and wrap it for several hours in a towel wet with 1:20 carbolic solution and covered with oiled silk. Next day repeat this process. Let the skin then have a rest until 2 hours before operation, when a wet carbolized towel is applied and left on until the operation. Suppose we have removed a rodent ulcer of the face. Bleeding vessels are clamped, and the cavity is plugged with gauze to arrest bleeding. The thigh is washed with alcohol. When the wound ceases to bleed, thin grafts of epidermis are cut from the thigh. The graft should not contain any of the papillary layer. If it does contain this, it will curl up. The average graft cut is about 1 in. square. The graft is transferred to a sterile sponge, is spread out with the raw surface upward, and the raw surface is pressed on to the wound on the face, where it will stick as the sponge is withdrawn. This graft should overlap the wound-edges. Another graft is cut, and placed so as to overlap the first, and so on until the wound is covered. After each graft is put in place a large pad of sterile gauze is gently pressed down over the transplanted grafts and the wound, and is lifted when the next graft is ready. This proceeding removes moisture. If a granulating surface is to be covered, it is scraped to remove superficial cells, but not deeply opened. Deep curetting exposes a base of fibrous tissue, to which grafts may not adhere. After bleeding has been arrested, grafts are then placed as directed above. Barker dresses these cases with dry sterile gauze or salicylated wool pressed evenly down upon every portion of the grafts. Such a dressing brings the surfaces of the grafts in firm contact with the raw surfaces beneath, and also squeezes out moisture. The dressing is not removed for 6 or 7 days, and is well soaked with boric-acid solution before it is removed. The wound on the thigh is dressed with borated lint, left in place for 1 week.

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[1] Méd. mod., Sept. 14, 1898.

[2] Practitioner, Oct., 1898.

W. Moore[1] describes and strongly commends the method of skin-grafting which was introduced by Wolfe in 1875. It consists in transplanting a flap composed of the entire thickness of the skin, deprived of its subcutaneous fat, from one part of the body to the other, without keeping a pedicle of attachment to its original situation. The flap, if destined for the face, must be thin and devoid of hair. It may come from the upper outer or upper inner portion of the thigh, or from the thorax below the nipple. "The part to which the flap is to be transplanted is first prepared by dissecting up a flap, by the removal of new growth, ulcerating surface, or scar, and carefully arresting all hemorrhage. As recommended by Wolfe, it is a very good practice then to free the edges of the gap; that is, to undermine them slightly with the knife. The size of the flap is then carefully measured, and a piece of gauze, oil-silk, or other material, cut exactly in size and shape. A flap of skin in some suitable situation is then marked out, with a sharp knife, the exact shape of the flap required, but of somewhat larger size. It is my practice at this stage to make the incision just through the skin, then to pick up the cut edge with a dissecting-forceps, dissect off enough skin to enable a hold of it to be taken with the thumb and index-finger, and then to dissect the skin off, without any subcutaneous fat. If any fat has been removed with the skin, the flap should now be placed in warm saline solution, and this fat removed with a sharp scissors curved on the flat. The flap of skin is then placed on the surface already prepared for it. No sutures should be employed, as the dressing quite easily keeps the graft in position. It is then covered with a thin layer of antiseptic or sterilized gauze, cut the exact shape of, but slightly larger than, the flap, and covered with a thin layer of boroglycerid ointment. Boric powder is next dusted on, and antiseptic or sterilized gauze, crumpled up so as to take up any discharge readily, is applied; then some absorbent wool; and these dressings are kept in place by the firm pressure of a bandage. It is well to leave the first dressings unchanged for 3 or 4 days at any rate, unless there has been oozing, or unless there is pain, or the bandages have become loose or uncomfortable. The dressings are very carefully removed, so as not to lift the graft from the fresh surface, to which it should now be adherent. If the dressings next the flap are dry, it is generally wise to allow the piece of gauze with boroglycerid on it to remain in place. The parts are dressed as at first. The same piece of gauze, in cases that are doing well, may with advantage be allowed to remain in its place until healing is complete. We are always told that the flap should be considerably larger than the gap to be filled, and this is no doubt correct; but I am satisfied that the flap should not be so much larger as is generally advocated. No doubt, when dissected free from subcutaneous tissue, the skin has a marked tendency to shrink in extent, and allowance must always be made for this shrinkage; but when this flap is placed upon the raw surface prepared for it, and has had time to adhere, it is remarkable what a tendency it has to reexpand to its original dimensions. In this way I have seen a flap that, when applied, did not properly cover the exposed surface, by the time of the first dressing become so stretched as to fit accurately the place prepared for it. On the other hand, a flap that, when applied, fitted absolutely perfectly, is not uncommonly found at the first dressing to overlap the edges of the surrounding skin; this is a matter of some importance, as it favors the death of the edge of the flap, and, in any case, renders the scar less perfect. It has been my custom, if a large gap had to be covered, to use a single graft to cover it, if such could be obtained. More recent experiences would induce me in future to apply the new tissue in several pieces, as originally recommended. The point is probably of no great importance; still, it does seem as if a large flap were more liable to localized slight necrosis than smaller ones."

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[1] Intercol. Med. Jour. Austral., Nov. 20, 1898.

X-RAYS.

Redard and Larau[1] report on the use of the x-rays in the **diagnosis** and treatment of **deviations of the spinal column.** They consider that this is a very valuable means of diagnosis. In Pott's disease the foci of tuberculous trouble can be made out by taking anteroposterior and lateral views. By using this method we may be able to make a very early diagnosis of the condition, and thus institute treatment before a period in which subjective and objective symptoms would have made the condition clear. The x-rays will show us how many vertebræ are attacked, and to what degree; the loss of substance; if there are sequestra and tubercular cavities; if distortion of the thorax exists, and, if so, to what extent. If an abscess-cavity has been injected with iodoform, its size and extent can be clearly made out. The progress of the disease can be determined by radiographs taken from time to time, and the value of a plan of treatment can therefore be estimated. X-rays have shown positively, just as anatomic specimens have, that perfect cure is possible in these cases.

Carl Beck[2] of New York points out the value of using the Röntgen rays in cases of **spina bifida.** We are thus able to determine positively if there is an opening in the bone, and to tell of the presence of the nerve, and sometimes of the nerve-expansion in the sac; and in cases in which the diagnosis between spina bifida, lipoma, or fibromyoma is in question this method will settle the point.

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[1] Rev. de Chir., Nov., 1898, Supplement.

[2] Med. Rec., Aug. 13, 1898.

Ringel[1] discusses the use of the x-rays in the **diagnosis of nephrolithiasis.** He says that uncertain results have been produced by the fact that different forms of calculi transmit the rays with varying degrees of facility. Calcium oxalate shows very strongly in a picture. A urate stone gives but an indistinct figure, and a phosphate stone, like a gallstone, is almost, though possibly not entirely, invisible. Therefore, if we take a picture and find no shadow, it is not proof that there is no renal stone. Even a calcium-oxalate stone may be obscure because it is surrounded by purulent matter or turbid urine. The process is still more uncertain in vesical stone. In several cases in which large stones were removed by operation, no shadow was shown by the skiagraph.

Charles Lester Leonard[2] writes on the x-ray diagnosis of **renal calculus,** and his conclusions are as follows: "The advantages of the Röntgen-ray method of diagnosis in cases of renal calculus, as demonstrated by clinical experience, are: Its absolute accuracy, positiveness, and comprehensiveness; its freedom from pain, shock, and danger; and, in addition, all the advantages that accrue from an early absolute diagnosis. Completeness of operation is assured by the detail which it gives, while the operation is facilitated in its execution. The negative diagnosis will frequently render operative interference unnecessary, and save the patient the risk and annoyance of an exploratory operation. The positive knowledge it gives regarding the presence of calculi in one or both kidneys makes operation upon the wrong kidney impossible, and gives warning of the danger when both kidneys are involved. Its value is therefore evident in all classes of cases—when there is but a suspicion, it saves the patient from the menace of anuria; when calculi are known to be present, it gives their absolute location and number; and when no calculi are present, it saves the patient the risks of an exploratory nephrotomy. It consequently has indications for all classes of cases, and offers a solution for the diagnostic difficulties surrounding calculous nephritis. The diagnosis it affords is absolute, both positively and negatively, and has the advantages of mathematic accuracy."

H. Lyman Sayen[3] discusses the use of the **x-rays in the army,** and reports a number of striking cases to show the value of the proceeding. He says the number of wounded that required the use of these rays was not large, but was very varied. Bullets were found when their presence was not even suspected. Not only are these rays valuable because of their immediate usefulness, but also because they furnish most accurate information as to matter of record. A covered wagon drawn by 2 mules would be sufficient to furnish the dark-room and the means of conveyance. It should be in charge of 2 trained men, so they could take care of everything, from the secondary of the induction-coil to the hoofs of the mules. A 12-in. induction coil could be placed in the wagon, and this should be so made that it can be instantly removed and replaced by a duplicate. The wagon should have a complete set; and should also carry a supply of tubes and photographic apparatus, and a little dynamo and windlass, so that the mules, in their spare time, could charge the storage batteries. The weight of the apparatus would be within 1000 pounds.

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[1] Centralbl. f. Chir., Dec. 10, 1898.

[2] Phila. Med. Jour., Apr. 22, 1899.

[3] Ibid., Dec. 17, 1898.

E. H. Howlett[1] writes a practical paper on the x-rays, in which he describes at considerable length and with great clearness the **necessary apparatus** and the means of employing it. He says the x-rays have achieved their greatest triumph in the detection of foreign bodies, such as shot, bullets, needles, and coins; but, although such bodies can usually be readily detected, it does not follow that they may be easily removed. We must remember that needles are apt to move about in the tissues, and they should be operated upon soon after their detection. Another point that may be misleading is that the x-rays give no indication of the exact depth from the surface of the foreign body, and it is necessary to view the part from more than one point in order to reach a reasonable estimate. In such cases a photograph is more valuable than a view on the screen, for the screen is rough and the image will be somewhat blurred, and a needle lying parallel to a bone may be overlooked, but a photograph will at once detect it. Various observers have invented appliances by means of which foreign bodies can be accurately located. Fractures and dislocations are easily detected. We must remember that before the age of 25 the epiphyses, being more transparent than bone, transmit so much light that the appearance of a joint on the screen or in a photograph is different from what might be expected. Fractures can be examined to see the position of the broken ends without being removed from their splints or their plaster cases. Tuberculous bones and joints, gout, rheumatic and neurotic joints have their distinguishing features. Foreign bodies have been distinguished in the eye, irregularities and hidden teeth located in the mouth, and bullets localized in the brain. The size of the heart can be estimated, and aneurysms occasionally outlined. The lungs easily transmit the rays; hence diseases that cause consolidation or compression can be made out, such as pleurisy, pneumonia, and advanced tubercle. Howlett is unable to confirm the statement that it is possible to detect slight consolidation at the apex. In the abdomen the x-rays have given little assistance. The liver, which is filled with blood, and the pelvic bones obscure much light and space, and only a small region is left where we can explore. Gall-stones readily transmit the rays, hence the process does not aid us in their diagnosis. Renal calculi have been detected, but more often overlooked. In bladder-conditions the rays give but little aid; more certain information is got by other methods. The x-rays are not of much avail in the detection of new growths. Neoplasms in connection with bone and their relation to bone can be made out, and sometimes we can distinguish between a periosteal and a central growth. Parts exposed frequently or for a long time to the influence of the rays lose the hair; but as this hair grows again it does not matter much. Burning effects of the rays are more important, and numerous cases have been reported. These burns begin with a redness; then a black slough forms and spreads. They are very painful and intractable, and are most apt to follow prolonged exposure on successive days, the tube having been brought close to the skin. In one case Howlett says the patient noticed a pricking sensation during the examination. If we observe the tube and wires while the current is running in a darkened room, we can see leakage going on all around, and by placing the hand within a few inches a sort of windage can be felt. By placing the hand nearer we will obtain a pricking sensation, or even sparking. It is probable that x-rays burns are burns by induced currents—really an electrolysis of the part.

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[1] Quart. Med. Jour., Oct., 1898.

Curtis[1] showed to the New York Surgical Society a **misleading skiagraph.** The child had swallowed a hat-pin having a glass head. An x-ray picture revealed a thin, dark body, like the shaft of the pin, in the esophagus; but this picture was deceptive, because the pin was soon after recovered in the stools, and the supposed pin was a defect in the gelatin of the plate.

Edward A. Tracy[2] writes on the **fallacies of x-ray pictures.** He says that harm is threatened in the field of medical jurisprudence by the use of these pictures. They have been admitted as evidence in some courts; but he thinks their indiscriminate admission will result in injustice, because they can so easily lead to error. They should only be admitted as evidence of injury when they have been taken and presented under certain conditions. X-rays are not parallel; hence, in all x-ray pictures there must be some distortion. Then the size of the shadow depends also upon the nearness of the object to the surface from which the shadow falls. To understand accurately an x-ray we must keep in mind the obliquity of the rays, and must mentally correct the disproportion and distortion which this obliquity inevitably causes.

Linstow[3] reports a case in which numerous **splinters of glass** were found in a finger by means of the Röntgen rays.

Williams and Lloyd[4] write on the x-rays in **medicolegal cases,** and they are not enthusiastic as to the value of such evidence. In taking these pictures, it is very easy to increase in the picture any existing deformity by just placing the tube slightly out of proper position. Hence, if an x-ray print is presented in court, it should have been taken before witnesses who can prove the position of the patient, the tube, and the photographic plate, and the distance the patient was from the tube.

Edmund Owen[5] writes upon **fractures in a new light,** and he shows that individuals who have been treated for fracture and who have gone around with ease and comfort may exhibit in an x-ray picture noteworthy deformity; and if an enterprising solicitor gets hold of such a case and exhibits such a deformity to a sympathetic jury, it is not improbable that damages might be meted out to the physician. Inconvenient illuminations of badly set fractures and in other cases in which nature has not been enabled to triumph over osseous lesions are becoming of frequent occurrence, as patients are getting in the habit of having pictures taken after some surgeon has made a diagnosis, and mistakes are thus nailed to the barn-door. There are several ways in which a practitioner may seek security in the treatment of fractures and injured joints: He must examine every case of suspected fracture or of possible fracture with very great care, getting a confrère to administer an anesthetic, if necessary. If he is in doubt as to the diagnosis or the treatment, or if he wishes to relieve himself of responsibility, he should get a confrère to see the case with him. If there is still doubt, he should have a radiograph taken. Although a medical man may treat a case with every reasonable skill, the result may not satisfy his patient, and he may be subjected to the annoyance and the expense of a civil action. Every practitioner should insure against such contingencies, to the best of his ability, in the manner suggested, and he should further protect himself by becoming a member of the Medical Defence Union. "In connection with the mistakes and failures or the imperfect results of our brother practitioners, it is our duty to be extremely charitable, and never to pass upon them a hasty adverse judgment, for it is possible that when the case was first seen it was surrounded with difficulties of which we can know nothing, and that the care and skill bestowed on it were worthy of a better issue. It may be equally unfair and uncharitable to judge merely by result."

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[1] Ann. of Surg., Mar., 1899.

[2] Jour. Electrotherapeutics, Sept., 1898.

[3] Deutsch. med. Woch., No. 41, 1898.

[4] Ann. of Surg., Oct., 1898.

[5] Practitioner, May, 1899.

GUNSHOT WOUNDS.

Davis[1] writes upon **injuries inflicted by modern projectiles.** He says that a ball striking a man obliquely may simply contuse the part, or may cause a subcutaneous fracture; and if a ball runs parallel to the surface, it may make a grooved or a furrowed wound. A ball passing obliquely may burrow for a considerable distance just under the skin and then pass out, making a seton wound, which is apt to result in a persistent sinus. It is possible for a bullet to enter the tissues and fall out again, and he cites a case in which this occurred. The bullet may emerge from the body, after perforating it, practically unaltered, or it may itself be comminuted even when it has not fractured bone. Injuries of the chest are apt to be followed by pneumonia, pleurisy, pleural hemorrhage, and empyema. In the long run a bullet in the lung may become encapsuled. The mortality from wounds of the pelvis and abdomen is high, especially where the viscera have been perforated. In some cases laparotomy has saved life; but the majority of such cases prove fatal because of the severity of the traumatism or from the onset of gangrene.

Alexander Ogston[2] opposes the views of von Bruns as to the inhumanity of the **Dum-dum bullet** and the soft-nosed **Mauser.** It will be recalled that von Bruns maintains that such bullets are inhuman and should be prohibited in warfare. Ogston says: 1. Von Bruns's experiments were not made with genuine Dum-dum bullets at all, but with soft-nosed Mauser bullets, and conclusions derived from the latter cannot with justice be applied to the former, as the soft-nosed Mauser is too unlike the Dum-dum to justify us in accepting conclusions which assume identity between the two as being true. They may be probable, but they are not proved. 2. The retention of the complete mantle would not in many cases do away with the disintegration of the bullets on impact at short range, and their consequent pseudoexplosive effects. 3. The term "explosive," applied by von Bruns to these disintegrating bullets, is misleading and objectionable. 4. Von Bruns shows no control-experiments, photographs, or skiagraphs to enable a comparison to be made between the effects of the lead-pointed projectiles and the fully mantled bullets. 5. Ogston concludes that von Bruns is inaccurate.

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[1] Indian Med. Rec., Aug. 1, 1898.

[2] Brit. Med. Jour., Sept. 17, 1898.

Francis C. Abbott[1] writes on the **surgery of the Græco-Turkish War.** His conclusions are as follows: "The Röntgen rays should always, if possible, be available at that hospital nearest the front in which wounds can be first properly examined and dealt with. The electricity should be derived from a secondary battery consisting of separate covered cells charged from the nearest town, a man-of-war or other steamer, or by means of a cycle-motor, as has been recently done in the Soudan by Major Battersby. The skiagrams should be taken on Eastman's positive paper, which is sufficiently satisfactory for the detection of foreign bodies. The apparatus is of no use on the field, where the detection of bullets can only be an incentive to premature exploration. The less wounds are tampered with before satisfactory surroundings are reached the better. All difficult bullets should be removed by a fresh incision, and the track ignored. The modern bullet, from its greater penetrating power, will be much less frequently found in the body than its predecessors. It is practically aseptic, and there is no urgency for removal. The hole of entrance is often extremely small. Suppuration is generally due to pieces of cloth carried into the tissues. Superficial septic sinuses should be excised. Wounds of lung by modern bullets run a comparatively favorable course. Small-bore bullets may bore through a bone without causing any line of fracture whatever, and every degree of injury from this up to the most extensive comminution may be met with. Passive movements, and massage when possible, should be begun early in bullet-wound fractures."

Nicholas Senn,[2] in an article on the **wounded of the Porto Rican campaign,** reviews some of the necessities of the war of invasion, considers the effect of climate and home-sickness and camp-life, and the sins of omission and commission which may have been committed. Only a few men were killed and not more than 40 were wounded in this Porto Rican campaign. Among the wounded, bone-injuries were rare and many of the wounds were slight. The small-caliber bullet of the Mauser rifle causes wounds of the soft parts which, if left alone under the first dressing, will heal by primary intention in a week or two. The small-caliber bullet does not infect the wound, and seldom carries with it into the tissues clothing or other infectious substances. Such wounds will heal promptly, if left alone, under the first-aid antiseptic dressing. Evil consequences are likely to follow unnecessary probing or meddlesome surgery. Such wounds are very susceptible to secondary infection caused by the probe. The modern bullet is humane. Senn reports a number of cases to confirm these statements.

Nicholas Senn[3] presents recent experiences in **military surgery** after the battle of Santiago. Senn says that the small-caliber bullet rarely infects wounds, and seldom carries into the tissues clothing or other infectious substances. Wounds of soft tissues, uncomplicated by visceral lesions, heal by primary intention in a very short time. If infection occurs in such wounds, it is generally superficial in connection with the skin, and more often attacks the wound of exit than it does the wound of entrance; probably because of the larger size of the wound of exit and the greater amount of laceration of tissues at this point. In many cases this superficial suppuration prevented primary union, but the deep tissues were seldom affected. Some of the compound fractures which suppurated were infected in this manner. The many failures in saving graver wounds from infection Senn attributes to 3 different causes: Inadequate supply of first dressings; faulty application of first dressings; and unnecessary changes of dressings. Senn considers the effect of the bullets on the soft tissues, and discusses the value of the x-rays in military practice. In speaking of gunshot wounds of the head, he says that a number of wounded men who lived long enough to be transported to Siboney died within 12 days after receiving the injury; death being due in each case to intracranial infection. The intracranial infection was always accompanied by cerebral hernia. Surgical treatment seemed powerless to control the infection. He reports 4 cases of head-injuries, and discusses gunshot wounds of the neck. In speaking of gunshot wounds of the spine, he says that all who received such injuries, if the cord was seriously damaged, have died or will die in the near future; early deaths being due to infection, and later ones to exhaustion. In gunshot wounds of a man's chest, it is better if the bullet passes through than if it lodges; although this is not so absolutely true as it was in the Civil War, because the modern bullet is not apt to produce infection. In these cases of chest-injury, unless hemorrhage was severe, the symptoms were mild. All the cases were treated expectantly; that is, dressing the external wound; and in no instance was the pleural cavity opened for the arrest of hemorrhage. His experiences in gunshot wounds of the abdomen have confirmed the view that not unusually cases of penetrating gunshot wounds of the abdomen will recover without active surgical intervention. His view which he has taught for years has been sustained; that is, that the bullet may pass through the abdomen on a level with the umbilicus and above it, passing in an anteroposterior direction, without producing any visceral lesions that demand surgical operation. If the bullet passes through the intestine-area, it is apt to cause from 1 to 14 perforations. Four laparotomies for perforating injuries of the abdomen were performed in the general division hospital, and all of the patients died; but this large mortality should not deter surgeons from doing the operation in future if the case is one in which it is reasonable to believe that the bullet has inflicted serious visceral injury. He concludes his article by discussing gunshot wounds of the extremities and gunshot fractures.

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[1] Lancet, Jan. 14, 1899.

[2] Jour. Am. Med. Assoc., Oct. 15, 1898.

[3] Med. Rec., July 30, 1898.

William Francis Campbell[1] writes on the **modern small-arm projectile** and the wound it inflicts, and makes a report of 50 cases. His conclusions are as follows: "From a study of the cases reported we may conclude that all wounds inflicted by the modern small-arm projectile require immediate protection from bacterial invasion by the application of suitable dressings; that the great majority of these wounds require this and nothing more. It would almost be inferred that the inventor of the modern bullet was possessed of surgical instincts, so harmoniously does it work in accord with modern surgical technic. In the mid-range, at least, we may say that it incises without devitalizing; it penetrates without infecting. Modern bullet wounds are clean wounds. Their treatment consists in keeping them clean. While the damage to the shaft of the long bones must always be considerable, the ends of the long bones suffer less; joint-complications are few and amputations rare. Few bullets will be found lodged in the body because of the great velocity and penetrating power of the steel-jacketed projectile. The value of the x-rays in this class of injuries is simply inestimable. The probe, with all its attending disadvantages, has been relegated to a minor sphere of usefulness. The sense of sight has superseded the sense of touch, and surgical practice has advanced another step toward the ideal by Röntgen's great achievement. Since primary hemorrhage must be the cause of many deaths on the battlefield, it is imperative that every soldier in our army and national guard should receive instruction in the location of important arteries and the ordinary means of hemostasis. In such an emergency many lives could be saved by the intelligent efforts of a comrade. We might, too, with advantage, teach the value of the first-aid dressing and its proper method of application. The maxim of Nussbaum cannot be too strongly emphasized: "The fate of a patient seriously wounded is almost entirely in the hands of the surgeon who applies the first dressing."

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[1] Med. News, Nov. 5, 1898.

Robert E. Bell[1] writes on the **effects of the Mauser bullet.** He says that in the hospital with which he was connected were 300 men who had been wounded by Mauser bullets, and up to the time of writing but 1 man had died of his injury, and that was a case in which there was a wound of the left subclavian artery which had been followed by an aneurysm. Among all these men there is not a single case of the dreadful injury which is said to be inflicted by these bullets. "Some of our officers say that the reason of this is that the Spaniards used poor powder." Another explanation is that the men were not within the range which is called the explosive range of the bullet. But the author says he had men who had been hit at all ranges, and these cases were free from infection. There are several cases in which the bullet penetrated the lung and came out behind. The patients have coughed up a little blood, but in other respects have not appeared to suffer. In some cases the bullets have entered the back of the neck, passed down the entire length of the back along the spine, and came out opposite the lower lumbar vertebræ. The point of exit is a little larger than the point of entrance, but there is scarcely any tenderness along the track of the bullet. In some cases the bullet passed through the bones of the tarsus, the femur, or humerus, and simply burrowed a small hole. In one case the bullet entered the temple, just behind the orbit, and came out on the other side. The man recovered, although he lost his sight on the side the ball entered. In many cases one cannot see any difference between the point of entrance and the point of exit. Bell concludes that the men who have said much regarding the terrible havoc caused by the Mauser bullet have not seen many men wounded by it.

The *Boston Medical and Surgical Journal*, Mar. 9, 1899, contains an editorial on the *Results of the Spanish-American War*, that says these results vindicate the action of the War Department, which several years ago began to give instruction in **first aid and antisepsis.** This innovation was not approved of by the line officers at Santiago. The dense jungle prevented the ready location of the wounded by the surgeons and the men of the hospital corps, and in many instances the first dressings were applied by the sufferer himself or by his comrade, using the "first-aid packet" previously supplied each soldier. In many cases this first-aid dressing was never removed until about the tenth day, when the wounds were found solidly healed. Suppuration occurred in only 2% or 3% of the wounded in the Cuban campaign, the reason being partly because the Mauser bullet is a humane projectile and partly because of the use of these first-aid packets. Many very serious wounds, such as perforations of the lungs, liver, and larger joints, healed without operation under simple sterile dressings. The total number of bullet wounds and shell wounds in the late war amounted to 1581. The total number of major operations, including those necessitated by casualty and accident among the 200,000 troops, was only 58. There were 34 amputations, 4 laparotomies after bullet wounds, 7 cases of trephining, 3 cases of resection of bones, 1 case of ligation of a large artery. These figures show that of the total number of soldiers not actually killed outright, only 3.4% were later subjected to serious operation, and the records show that secondary operation was rarely needed. Perforating wounds of the intestine, which always necessitate laparotomy in civil life, are not always considered as doing so by the military surgeon, because there is a long delay before such a patient can be brought to the operating-table, and this delay probably results in general peritoneal infection. Then the surgeon is overworked and has but a limited time at his disposal, and it is never justifiable for a surgeon, under such circumstances, to waste time and the strength of himself and his assistants in laboriously suturing the gut of some profoundly depressed patient who practically has already peritoneal infection and almost no chances of recovery. In the Spanish-American War few cases of men with intestinal wounds reached the hospital. The 4 that were operated on died of peritonitis.

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[1] Boston M. and S. Jour., Aug. 4, 1898.

The *Boston Medical and Surgical Journal*, May 4, 1899, editorially discusses **modern gunshot wounds** in the Spanish-American War. The writer reviews the contributions to the surgical history of the war which were made at a meeting of the Medical Society of the District of Columbia and the Anthropological Society of Washington. Papers were read by Kober, Major LaGarde, Captain Borden, and Captain Munson; and Captain Gray of the Army Medical Museum gave an exhibition of the x-rays. At this meeting the following conclusions were reached: 1. "Open-order" formation and the use of hasty entrenchments are the chief factors in the prevention of casualties to the combatants proportionate to the great modern improvements in firearms. 2. The anticipated "explosive effect" of the modern bullet was found to be extremely rare in modern warfare, even when wounds were incurred at ranges theoretically most favorable for the maximum destructive action. 3. Wounds by the small-caliber bullet are accompanied by but slight "shock" to the individual injured. 4. The ratio of killed to wounded depended entirely upon the question as to whether a vital point was, or was not, struck. 5. The small frontage of the modern bullet caused wounds of soft tissue which were almost subcutaneous in their nature, and which, hence, healed rapidly and kindly. 6. Primary hemorrhage was extremely rare, the vessels appearing to be pressed aside rather than cut by the projectile. 7. The number of compound fractures was proportionately small, and extensive comminution of the long bones was uncommon. 8. Lesions of the joints were of no great severity, and uniformly presented excellent results by simple immobilization without operation. 9. Laparotomy in the field is not justifiable except in rare instances. 10. Perforating wounds of the brain, lung, or abdominal viscera, if not immediately fatal, are recovered from without operation in a large number of instances. 11. Major operations were not called for, 96.78% of the 1581 wounded requiring only trivial operative treatment, if any. 12. A surprisingly large number of Mauser bullets lodged in the tissues—in the battle of Las Guasimas no less than 18.1%. 13. The hard-mantled bullet rarely disintegrates on impact with human tissues. 14. Portions of clothing or equipment are rarely carried by the projectile into the wound. 15. The modern bullet of hard exterior and small caliber, as compared with the old lead bullet, is more humane, rarely permanently crippling such as may be struck and are not killed outright. 16. The few instances of wounds by shrapnel or bullets of large caliber would seem to show that the much higher mortality of former wars was probably due rather to the nonapplication of the rules of antisepsis than to the more destructive character of the larger missiles employed. 17. The subsequent mortality among such wounded as ever reached a hospital was almost entirely a question of the application of the principles of antisepsis to the wound and its vicinity. 18. Asepsis in operation is difficult to obtain in field-hospitals in the rush of work incident to a battle. 19. Operation in the field-hospital is usually inadvisable except when imperatively demanded to save life. 20. The location, at suitable accessible points, of thoroughly equipped base-hospitals, where conditions of asepsis can readily be maintained, is of great importance. 21. Antisepsis, even more than the modern humane missile, has alleviated the horrors of modern wars. The rarity of the explosive effect of the modern projectile and the efficiency of antiseptic methods in the treatment of bullet wounds are among the most gratifying facts brought out by this discussion.

OBSTETRICS.

By BARTON COOKE HIRST, M. D., AND W. A. NEWMAN DORLAND, M. D.,

OF PHILADELPHIA.

PRELIMINARY AND GENERAL CONSIDERATIONS.

Midwives.—[As usual, the influence of the midwife on the practice of medicine has received a large share of the attention of the profession during the past year.] T. J. Hillis[1] remarks that the custom or usages of ages cannot be obliterated by a stroke of a governor's pen nor by an act of Congress. The midwife has withstood the changes of fortune for over 5000 years, and she will continue to exist. In Greater New York, about one-half of all the confinements are conducted by midwives, or by janitresses, neighbors, and often would-be midwives. As a rule, the midwife becomes frightened early in a case, and often summons a physician when he is not really required. Much more injury is done by young, meddlesome, and inexperienced medical fledglings than by the midwife. These young medicos make, on an average, about 300 vaginal examinations, with the result that they cause congestion and drying up of the vagina, and often endanger the life of the parturient. The passing of the midwife would not mean that the parturient woman would call a physician. If she could not have her midwife, she would employ a woman physician, in spite of her natural prejudice against the latter. The result of the suppression of the midwife would be that the country would be flooded with women doctors, and medical men would be squeezed between the millstones. A much better plan than the suppression of the midwife is the determination of the individual physician to instruct properly the midwife in his neighborhood. T. H. Manley, in the discussion, said that the government of Great Britain had just decided to register midwives. Personally, he had long been of the opinion that, as a rule, a man has no business in the lying-in chamber, and that this was the special sphere of the midwife, the trained nurse, and the woman physician. He hoped that the time would come when every trained nurse would be properly instructed, and given a certificate which would legally constitute her an attendant on cases of obstetrics. [Our stand on the midwife question is well established. The better training of the medical student in obstetric work and the large number of maternity institutions should provide suitable attendance for all the maternity cases in our large municipalities. Absorbing, as we are, much of the riffraff of the European population, there is no reason whatever why we should, in addition, transplant any of their objectionable methods and institutions. We cannot endorse the extravagant statements made above. The disastrous and often ghastly work of midwives cannot be compared to the worst attendance even of the medical student and young medical graduate, whose superior mentality alone should insure more careful supervision of labor cases. If need be, abolish the midwife from the country, and let the community be flooded with the female physician (which we do not believe would follow); should it occur, it would be an incalculable blessing to the suffering and dying women in the hands of the unscrupulous, filthy, and often criminal importation from abroad. England, truly, has recently insisted upon the registration of her midwives; not, however, as a means of showing her approval of that class of individuals, but as a first step toward the correction of a vast and crying evil; by so doing she aims a blow at criminal proceedings, and endeavors to inculcate a cleaner technic. Above all, we feel that the medical man should wash his hands clean of the midwife and any professional recognition of her services. The recognition of her does not bring her up to his standard, but tends to lower him to her deplorable level. The perusal of a recent article by E. T. Gerry,[1] president of the New York Society for the Prevention of Cruelty to Children, will convince any right-minded individual of the urgent necessity for the suppression of the midwife evil.]

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[1] Med. Rec., Oct. 1, 1898.

Pregnancy in Relation to Life Assurance.—J. Playfair and T. Wallace[2] discuss the extra risk to an insurance company in the case of a female who, at the date of the insurance, is pregnant, as distinguished from the extra risk arising from possible future pregnancies of those who, at the date of insurance, are unmarried, or who, being married, are not pregnant. It is unfortunate that there are no published data by which the extra risk involved in a current pregnancy can be accurately gauged. It is true that we have statistics showing the death-rate in childbed of the general population, the death-rate of lying-in hospitals, and the death-rate of patients in the private practice of certain eminent physicians; but these statistics relate to persons whose circumstances and surroundings are more or less different from the circumstances and surroundings of the females who apply for life assurance. These statistics also present another defect of equal moment. They show the death-rate of or in childbed; and the materials from which they are made up were based on observations extending only from the day of confinement to a period of from 10 or 12 days to a month thereafter. The death-rate which is sought is not the death-rate of or in childbed, not the death-rate in the period from confinement onward, but the death-rate for the whole period, from the beginning of pregnancy onward through confinement until complete recovery has taken place. It has been stated that during pregnancy a woman is less liable than at any other time to contract diseases other than those peculiar to pregnancy; and if the statement is correct, it might be inferred that the mortality of the period of gestation is comparatively low. It is doubtful whether the statement is correct; and it must not be forgotten that the diseases peculiar to pregnancy are themselves full of danger and often prove fatal. The insurance companies alone can furnish data of the character required. The authors have made as comprehensive a study as possible of the subject, and have come to some definite conclusions. Unfortunately, their observations do not include the period of gestation. Their conclusions are as follows: 1. For the uniform extra premium at present charged, an extra premium, varying in amount according to age, should be substituted. 2. The extra premium for a first pregnancy should be at least 3 times as great as that for a subsequent pregnancy. 3. A proposal for insurance from a woman aged 30 or upward, pregnant for the first time, should be delayed. 4. A proposal for insurance from a pregnant woman aged 40 or upward, whatever the number of the pregnancy, should be delayed.

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[1] Med. Rec., Dec. 31, 1898.

[2] Brit. Med. Jour., Sept. 18, 1898.

The Question of Responsibility in Cases of Sexual Perversion.—[This question seems to have met with little consideration either in medical or legal circles, in the former less, perhaps, than in the latter, for here certain broad principles govern the matter, the obscurity being in the application to individual cases. This is due, in part, to the instinctive aversion to things impossible to the normally constructed mind, and, perhaps, more to the rarity with which these cases come under the observation of any one man, unless an expert in that particular line. The importance of the question is, however, great.]

F. W. Anthony[1] remarks, in this connection, that the sexual instinct in a given being is inherited from two diametrically opposed appetites, the male and the female; one aggressive and active, the other normally passive and receptive in tendency. In the early life of the embryo the embryonic possibility is equal; as time goes on, an unknown factor determines sex; but even then, and for a considerable time afterward, *latent* sexuality is all that is normally possessed. At the time of puberty, in normal development, there comes an impulse to genital stimulation; and, later, the various methods of acquirement of this stimulation are learned; and, later still, the method of receiving the greatest pleasure. We may roughly divide the elements in the case into purely physical—inherited tendency and physiologic development—and psychic. The latter is manifestly a matter of education. Even if we assume a material basis for mental operations, education plays so important a part in the development of that basis that it must be considered a potent factor. Inheritance has, therefore, a distinct effect: First, by causing certain tendencies to physical conformation and development; second, by transmitting a certain amount of the effect of previous education in psychic tendencies. These influences, physical and psychic, may be both *plus* from each parent, both *minus*, or antagonistic in various combinations. The determination of the *direction* of sexual desire is largely educational, the physical dealing more with its simple existence. Now, when the physical development accentuates the desire, the question of education is of paramount importance; and it is at this time of puberty that a wrong direction given to desire, either by accident or design, may be the factor that determines for all time the sexual life of the individual, assuming, of course, a mental condition normal up to that time and a normal physical environment. An incongruous sexual appetite once established, opposing influences, if sufficiently strong, may overthrow it. These influences may be educational, moral, or primitive, the latter, as a rule, settling the question of indulgence rather than that of tendency; the moral acting much in the same way; while the educational, by substitution, may cause entire change of direction, although the tendency of sexual perversion is toward continuance, the length of its existence being important in this consideration. Congenital perversion must necessarily be comparatively rare. The question of responsibility in sexual perversion depends largely on the origin of the trouble; if *peripheral*, it is seldom that the patient is irresponsible; if *central*, responsibility may be more doubtful or may be decisively negatived.

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[1] Boston M. and S. Jour., Sept. 22, 1898.

THE PHYSIOLOGY OF PREGNANCY.

The Determination of Sex.—[The expected has happened, and the theory of Schenck, whose pamphlet on the predetermination of sex appeared during the year, has, in the case of the Russian empress, been proved valueless. It is but just to state, however, that Schenck claims that this case confirms his theory from the fact that it was impossible to prevent the excretion of sugar.] Schenck's essay is a careful statement of the whole question up to date, and enumerates the conclusions to which its author has been led by his researches. The first part of the work consists in a commentary upon previous researches, going to prove that the sex of offspring is dependent upon the state of parental nutrition, and particularly that of the mother during pregnancy. In the development of the embryo, the generative organs are at first indifferent or hermaphrodite. In the further process one set predominates. This must be due to a predetermination which pertains to all the cells of the body. This predetermination may precede fertilization, a fact which is confirmed by observations on bees. Particular notice is taken of crossed sexual heredity, by which each sex tends to propagate the other. The experiments of Robin and Thury tend to prove that a nutritional factor in the parent impresses a sexual destiny upon the cells of the embryo. In the second part of his essay, the fact is enunciated that the better the female is nourished the more females she produces, the number of males remaining constant. Thus the crossed-inheritance tendency, whereby males are naturally expected, is modified by nutrition. This state of the organism's repletion is shown by the urine. For the perfect ripening of the ovum, the oxidation of the excreta must be shown to be complete. If there is a sugar-residuum or equivalent in the excreted carbohydrates, a deficient oxidation-factor exists, whereby the properties of the fetal protoplasm cannot be developed, and hence in accordance with the theory of crossed inheritance. When no sugar is secreted—not even the smallest quantity—then the ovum will be developed which is qualified to become a male individual. This is the cardinal point of Schenck's doctrine, and leads to the conclusion that appropriate nourishment before and after impregnation will lead to the conception of male children alone. If, therefore, a male child be desired, the maternal urine must be found without the sugar which is normally recognizable by the phenylhydrazin test. Schenck quotes numerous examples of the bearing of female children in cases of glycosuria. The desired modification by diet is usually accomplished by the administration of proteids and fats. The various factors which, according to biologic science, can have any effect in determining the sex of the fetus include the age, health, strength, sexual power, and nutritive conditions of the parents. The influence of the food of the parents upon the sex of the fetus has long been recognized. In their book on the *Evolution of Sex*, Geddes and Thompson have indicated that a physiologic difference exists between the sexes in that the chemical changes which occur in the body of the male are, on the whole, more rapid and complete than the corresponding changes in the female. In other words, a man lives quicker than a woman. But tissue-change can be influenced by diet; therefore, providing the as yet sexless embryo with food favoring tissue-change should tend to make it a male; while giving it a diet hindering tissue-change should produce a female. The truth of this has long since been tested by Born and others with frog-spawn. On low diet, about half of a number of tadpoles develop into female frogs; on a richer diet, about 70% become females; and by feeding as much as possible, over 90% of females may be secured. But in the human subject the only way of influencing the nutrition of the embryo is by regulating the diet of the mother. Thus it has been observed that in times of famine more male children are born than is usual. After a war in which many men are killed hard times prevail, the percentage of male children rises, and the population quickly consists again of males and females in the ordinary proportions.

An editorial[1] recalls a writer who has recently offered an explanation of the determination of sex which he considers to be so satisfactory as to make Schenck's work on the subject quite unnecessary. If, he says, the freshly extruded ovum is just beginning its journey down the tube when it meets and unites with a spermatozoon weakened and wearied by its upward journey from the uterus, the resulting fetus will be female. If, however, impregnation occurs in the uterus, the ovum has already lost vitality during the journey down the tube, while the spermatozoon is strong and fresh, having but started on its upward road. The product of conception, under these circumstances, will be male. The author takes for granted that ovulation occurs during menstruation; and that, accordingly, the ovum must be at the tube just after menstruation, but in the uterus some days later. Hence his simple conclusion, that female children are conceived at coitus closely following menstruation; while males are thought to result from coitus at a later date. [But in the human female, ova are shed from the ovaries without any special relation to the time of menstruation. This theory, moreover, is not quite new, since the same view was stated by Thury as the result of observations on cattle.]

Chemical Changes in Pelagic Ova during Maturation.—Wilson[2] makes a communication on the changes that pelagic and demersal ova undergo during maturation. The ripe pelagic ova differ from the demersal in being able to float on sea-water. The specific gravity of the former is only slightly below that of salt water; while the demersal ova, even when fully ripe, have always a distinctly higher specific gravity than sea-water; for example, in many varieties 1.054. The process of maturation, however, in both cases is essentially the same. In the immature ovum the germinal vesicle is very large and is centrally placed, and the protoplasm around it varies from a finely granular to a coarsely granular state. The final stage of maturation consists in a marked distention of the egg and a clearing up of its contents. This increase in volume is accompanied by the disappearance of the germinal vesicle.

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[1] Practitioner, July, 1898.

[2] Brit. Med. Jour., Sept. 17, 1898.

These changes occur in both classes of cases. As an example of a typical pelagic ovum, that of the plaice may be taken. When very unripe, it has a specific gravity of from 1.070 to 1.080; while just before the final distention it falls to 1.027. After the final clearing up of the contents the specific gravity falls to 1.024 to 1.025. The volume of the ovum during the latter stage increases about 3 times. As an example of a typical demersal ovum, that of the lening may be taken. When immature, it has a specific gravity of about 1.087 to 1.090; when ripe 1.066. This fall is mainly due to the passage inward of water. The unripe plaice ovum contains 57.5% of water; the ripe one, 91.8%; while the immature lening ova contain 46.7%, and the mature ova, 70.72%. There is a distinct rise in the amount of nitrogen in the ripe compared to the unripe ova of both pelagic and demersal ova; and the same holds to even a more marked degree of the phosphorus. There is also a distinct rise in the sodium chlorid in the ripe compared to the unripe. Practically, all the phosphorus that can diffuse out from the ova, both in the unripe and the ripe condition, is organically found. When fully mature, a much larger quantity of the organic phosphorus-holding body can diffuse out into distilled water circulating around the ova. Also, the albumin in the ripe ova is in a more diffusible state than in the unripe ova.

The Position of the Promontory, and its Effect on the Build of the Pelvis.—F. Barbour[1] states that, in judging of the character of a pelvis, one instinctively first looks at the conjugate of the brim. Its length gives a key to the pelvis, but its significance merely expresses the relation of the promontory to the symphysis. The position of the promontory, therefore, determines the build of the pelvis. The relation of the promontory and symphysis is the key to pelvic deformity; and this is because the weight of the body is one of many factors that determine the form of the pelvis. It thus becomes important to ascertain the normal relation of these bony landmarks. Any difference in the position of the promontory is usually ascribed to a difference in the length of the conjugate. The object of the writer was to show that there is another factor of equal importance in the set of the brim, by which is meant the difference in its inclination apart from posture. His results were based on a study of 18 frozen sections, too few from which to draw general conclusions, but enough to raise considerations of interest. The sections were made of the cadaver on the back. It is difficult to formulate a method of description which will express with accuracy the relation of the abdomen to the pelvis. Let a line (*AB*) be drawn through the promontory of the sacrum in the direction of the long axis of the body, and representing the horizontal plane when the patient is recumbent (Fig. 41). Let a second line be drawn through the upper margin of the symphysis (*C*) at right angles to the former, intersecting it at *B*. There is thus a right-angled triangle (*ABC*), the hypotenuse of which (*AC*) is the anatomic conjugate of the brim. The points to be determined are: how high the promontory extends above the symphysis, and how much it overhangs the pelvic cavity and would tend to keep the head on the symphysis, instead of allowing it to sink down into the pelvis. The result of Barbour's section is indicated in the accompanying table. The position of the promontory varies greatly, according to the build of the pelvis, individual pelves differing greatly not only in the length of the conjugate, but also in the set of the brim. The mean height is 3.8 in. above the symphysis; while the distance from the latter is 2.6 in. The height of the promontory above the symphysis is important chiefly from the topographic point of view. The length of the line *CB* is as important as the length of the conjugate. The shorter it is the more will the weight of the uterine contents rest directly on the pubes in pregnancy, and the more will the progress of labor be affected. Undue shortness of *CB* will affect not only the engagement of the head at the brim, but also the effectiveness of the uterine contractions in expelling the contents. The anatomic conjugates Barbour found to vary from 3.8 in. to 5.6 in. The obstetric conjugate, or the distance between the promontory and the nearest point of the symphysis, varies from 3.44 in. to 5.28 in. The difference between the anatomic and the obstetric conjugates varies from ⅕ in. to ⅖ in. If the horizontal line is carried backward till it impinges on the posterior wall of the cavity, it is found, in 12 out of 16 available sections, to strike the second coccygeal vertebra or a point below it. From this it is learned that the whole sacrum and a portion of the coccyx are above the level of the upper margin of the symphysis. The angle formed at the symphysis by the meeting of the anatomic conjugate and the horizontal line varies from 33° to 65°, and gives the set of the brim.

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[1] Brit. Med. Jour., July 16, 1898.

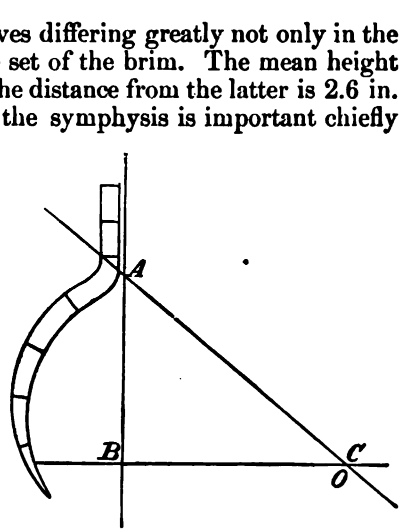

FIG. 41.—Scheme showing the effect of the position of the promontory (Brit. Med. Jour., July 16, 1898.)

Section.	*AC*, or anatomic conjugate.	Obstetric conjugate.	*AB*, or height of promontory above symphysis.	Intersection of *CB* with back wall of pelvis.	Angle *ACB*, or set of brim.	*CB*, or distance of promontory backward from symphysis.	Angle of inclination of axis of abdomen to brim.
	Inches.	Inches.	Inches.		Degrees.	Inches.	Degrees.
1	3.80	3.44	3.08	IV. and V. S.	55	2.2	35
2	4.50	4.28	4.00	0.4 below C.	64	2.0	26
3	4.40	4.12	3.80	0.06 "	61	2.2	29
4	4.80	4.40	4.00	II. C.	59	2.6	31
5	5.60	5.28	5.20	IV. C.	65	2.6	25
6	4.90	4.50	4.10	III. C.	58	2.8	32
7	4.60	4.40	3.40	II. C.	48	3.4	42
8	4.00	3.60	2.80	II. C.	50	2.5	40
9	4.80	4.60	4.00	——	58	2.3	32
10	4.70	4.40	3.80	II. and III. C.	58	2.6	32
11	4.80	4.52	3.80	IV. and V. S.	54	3.0	36
12	4.40	4.00	3.60	II. C.	54	2.6	36
13	4.60	4.28	4.00	I. and II. C.	58	2.6	32
14	3.92	3.56	2.92	II. C.	50	2.2	40
15	4.60	4.40	3.80	——	57	2.6	33
16	4.40	4.20	3.40	II. C.	52	2.8	38
17	4.60	4.00	2.40	IV. S.	33	2.6	57
18	5.00	4.60	4.04	IV. C.	60	4.0	30

The Female Organs and the Thyroid Gland.—De Voogt[1] doubts the alleged association between the thyroid gland and the female reproductive apparatus. Freund's teaching about bronchoceles appearing at puberty and also at the menopause is open to fallacy. The fact does not necessarily imply cause and effect; at puberty, many independent organs are active, and males also show active development of bronchoceles at puberty and near middle age. Exophthalmos is certainly commoner in women than in men; but it is not primarily a disease of the thyroid gland, and in some cases that organ remains small; nor when it enlarges does any evidence of ovarian or uterine disease necessarily exist. Lange[1] has studied this subject for 5 years, examining over 300 pregnant women. Hyperplasia of the thyroid gland is a physiologic phenomenon of the pregnant condition, and administration of thyroid extract reduces the size of the gland, indicating that it is not mere hyperemia, but an actual increase in the size of the gland. He never found the hyperplasia in cases of pregnancy-nephritis, but it accompanied 2 cases of chronic nephritis. Iodothyrin has an unmistakable effect on pregnant women, increasing the diuresis and diminishing the amount of albumin in the urine. He also established the fact that extirpation of four-fifths of the thyroid gland in cats with young resulted in tetanus, which subsided with the administration of iodothyrin. Extirpation of a portion which would not affect a nongravid cat caused a renal affection, with convulsions in some cases, not yielding to iodothyrin.

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[1] Centralbl. f. Gynäk., No. 27, 1898.

The Placental Site.—G. Leopold[2] states emphatically that, in advance of Bayer and independently of him, he formulated this axiom on the diagnosis of placental site through his own investigations on the living: "If the tubes converge forward and upward, the placenta is seated at the rear; if they run parallel to the axis of the corpus uteri—the woman being recumbent—the placenta is seated in front." According to C. F. Close,[3] this knowledge is of special importance when the question of inducing premature labor by introducing a bougie between the fetal membranes and the uterine wall, or that of performing the Cesarean operation, arises, in order to avoid the placental site. Close gives the statistics of placental implantation as follows: Posteriorly, 50%; anteriorly, 40%; to the right, 6%; to the left, 4%. Fournier[4] remarks that the adaptation between the uterus and the fetus and placenta is perfect, the placenta generally being inserted upon the entire height of the anterior or posterior face of the uterus. This insertion is made in the extremities of the anteroposterior axis of the organ and in the right oblique diameter of the pelvis. The fetus is in contact with the placenta by one of its lateral planes, and its position is determined by that of the placenta.

Placental Transmission.—Lannois and Brian[5] having had under observation a patient with grave symptoms of albuminuric origin, in whose case the symptoms suddenly disappeared on the death of the fetus, though the latter was not expelled till 17 days later, made some experimental inquiries, from which they concluded: 1. Substances (such as sodium salicylate, potassium iodid, and methylene-blue) injected into the fetus pass through the placenta and can be detected in the tissues and urine of the mother. 2. This experimental fact supports the view, already advocated by Lannois, that normal excretory products of the fetus pass through the placenta, to be eliminated by the maternal organism. 3. In cases of renal insufficiency these waste-products of fetal life can therefore, in part, contribute to the maternal autointoxication, and consequently can play a part in eclampsia and other accidents associated with the albuminuria of pregnancy. Charrin[1] injected 1 cc. of diphtheria-toxin into the fetuses of a pregnant rabbit (laparotomy having been made). In 2 days the rabbit aborted, and 2 days later she died. Autopsy showed intense congestion of the suprarenal capsules—a positive result of the action of the toxin. [This result, which was repeatedly obtained, shows how readily the fetus can transmit a *materies morbi* to the maternal organism.] R. B. Neil[2] believes that tuberculosis can be transmitted from the mother to the fetus. He quotes Osler to the effect that autopsy shows the lungs in the adult to be invariably affected in tuberculosis, while the other organs are involved in very small proportion; whereas Neil finds that in children the lymph-glands, the bones, and the joints are mostly affected. He bases his opinion on the results of autopsies on 125 children, in age from 6 months to 5 years, with no history of traumatism in the majority of the cases, the inference being that the infection must have been transmitted from the mother by means of the vascular and the lymphatic systems. The method of transmission, in Neil's opinion, is as follows: There is the tubercle at the apex; there is extension, followed by erosion of capillaries, the entrance of the bacilli into the circulation and the formation of new foci in the various organs; the growing and congested metrium being particularly fertile ground. The growing placenta adheres closely to the uterine wall, its villi dropping into the sinuses and coming in contact with the infectious material.

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[1] Zeit. f. Geb. u. Gynäk., Band 40, Heft 1.

[2] Obstetrics, Jan., 1899.

[3] N. Y. Med. Jour., Mar. 13, 1899.

[4] Gaz. hebdom. de Méd. et de Chir., Apr. 27, 1899.

[5] Ibid., Mar. 3, 1898.

Fetal Urination.—[The work of Mering has shown that after the administration of phloridzin sugar is found in the urine.] Schaller[3] has devised a new method of proving that the fetus passes urine *in utero*. His idea is that if phloridzin be given to the pregnant woman, some of it will enter the circulation of the fetus, and will cause the presence of sugar in any fetal urine that may be passed into the liquor amnii. The finding of sugar in the liquor amnii will then prove that fetal urine has been added to it. Schaller's results are as follows: In the fourth to sixth months of pregnancy the results were negative. When phloridzin was given to the mother up to the commencement of labor, sugar was found in the liquor amnii in 14 out of 20 cases. The sugar disappears from the maternal urine in about 8 hours after the last dose. Sugar was found in the urine of the child in each case, disappearing in about 32 hours.

Leukocytosis in Pregnancy.—Ascoli and Esdra[4] have examined the blood of 17 women at various stages of pregnancy, with a view to ascertaining the presence or absence of any excess of leukocytes. Assuming the mean to be 7600 leukocytes per mm., any figures decidedly above that were taken to indicate hyperleukocytosis. The authors also made observations with regard to postdigestive hyperleukocytosis in pregnant women. As to the so-called serous plethora of the pregnant, the authors have no data upon which to decide. It was found that although the figures representing the number of leukocytes were comparatively high, they were quite within the physiologic limits, and that there was no true hyperleukocytosis. [Probably this is true for the greater part of the term of pregnancy; but toward the end, shortly before expulsion, there is a true hyperleukocytosis.] Hibbard and F. White[1] have come to the following conclusions, based on observations made in the Boston Lying-in Hospital: 1. A leukocytosis is present in over three-fourths of the cases in labor, being more frequent and higher in primiparas. 2. During convalescence the count falls rapidly at first, later more gradually to normal; about the seventh day there is usually a slight rise. 3. The leukocytosis is usually higher in the younger women regardless of the number of the pregnancy. 4. The patients farthest advanced in labor have the highest counts. 5. Breast-inflammation, even when mild, causes a prompt leukocytosis; hence the blood-count has no value in the early diagnosis of breast-abscess. 6. The leukocytosis present at the time of labor is due to an increase in the polynuclear cells.

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[1] Med. Standard, Feb., 1899.

[2] M. and S. Bull. Alumni Assoc., Univ. of Nashville, May, 1898.

[3] Centralbl. f. Gynäk., Apr. 13, 1898.

[4] Boll. della Soc. Lancisiana, Aug. 18, 1898.

THE DIAGNOSIS OF PREGNANCY.

Abdominal Palpation in Obstetrics.—A. Pinard[2] remarks that external exploration, known as *abdominal palpation* or *external palpation*, is one of the most useful methods of examination in obstetric cases. This method of examination, known from time immemorial, has been employed advantageously only since the early part of this century; but it is really in about the last 20 years that it has been thoroughly studied, and that its methodic application has enabled us to state that it should be used in every case of pregnancy. Easy to teach, easy to learn and to use, abdominal palpation is the best method for the diagnosis of normal or complicated, simple or multiple uterine or ectopic pregnancies. The diagnosis of such conditions as triple pregnancy and hydrocephalus has been made possible only by the methodic use of this measure. During pregnancy, it in many cases determines the indications for prophylactic and curative measures. During labor, although often valuable, it is less so than internal examination. During delivery of the placenta, it is of equal value with internal maneuvers. After labor, it should be the sole procedure in physiologic cases, internal exploration being joined to it only in pathologic cases.

Vaginal Pulsation as an Early Sign of Pregnancy.—Vaginal pulsation is again brought forward, as an early sign of pregnancy, by G. Reusner,[3] who says that the pulsation of the lateral uterine arteries in the posterior vaginal vault is of a different character from that observed in women who are not pregnant, and is also different from that of other arteries in the same woman. [The author, unfortunately, does not make it very clear just what the difference is. The sign, however, is undoubtedly of valuable significance in every case of gestation, whether uterine or ectopic; and, if carefully looked for, may be recognized even as early as the first month of pregnancy.] Braun-Fernwald[1] mentions the following as an early sign of pregnancy: Careful palpation of the uterus will show one side of the uterus thicker than the other, with a quite perceptible sulcus lying between the two. The thicker horn indicates the site of attachment of the ovum. The difficulty in diagnosis lies in differentiating early pregnancy from uterine myoma.

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[1] Jour. Exper. Med., Nov., 1898.

[2] Med. Rec., Feb. 25, 1899.

[3] St. Petersburg. med. Woch., No. 24, 1898.

Rontography in Obstetrics.—[The Röntgen rays have been demonstrated to be of considerable value in the diagnosis of pregnancy and its complications, although the skiagraphs are necessarily not so clear and satisfactory as in other more surgical conditions.] Tarnier[2] gives a history of the various attempts that have been made since 1896 to solve the mystery of the human ovum by the aid of the x-rays. Müllerheim seems to have been among the first to attempt to photograph the dead fetus in the cadaver of the woman. His latest results have not been published, beyond the mere announcement that it is possible by this process to make a diagnosis of the presentation and position of the fetus in the uterine cavity. Pinard, Tarnier, and Vaillant have succeeded in doing this. The woman being placed in the dorsal decubitus, upon a photographic plate they obtained the shadow of the head situated in the body-cavity. Unfortunately, the fetal image is only visible as superimposed upon the maternal skeleton, and the parts lying in the abdominal cavity, thus far, are all that can be reproduced. R. Müllerheim[3] states that with the aid of the Röntgen rays it is possible to ascertain whether the pelvis is deformed or normal in shape; whether it is symmetric or asymmetric; if deformed, what the nature of the deformity is (atrophy, ankylosis of the sacroiliac synchondrosis, spondylolisthesis); after symphysiotomy, whether or not there has been firm union of the symphysis; what the accurate pelvic measurements are, such as the distance between the posterior superior iliac spines, the breadth of the sacrum, the distance

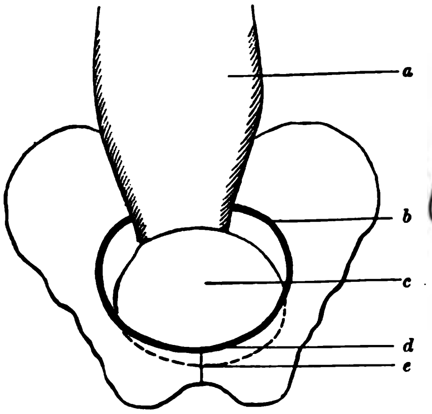

FIG. 42.—Vertex presentation, head low in the true pelvis: *a*, fetal body, only recognizable as a shadow; *b*, pelvic inlet; *c*, fetal head; *d*, anterior pelvic ring; *e*, vertex of the head (Deutsch. med. Woch., Sept. 29, 1898).

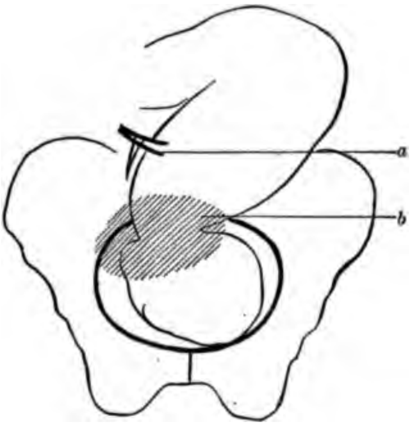

FIG. 43.—Face presentation: *a*, radius and ulna, the arms crossed; *b*, shadow of the right scapula (Deutsch. med. Woch., Sept. 29, 1898).

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[1] Wien. klin. Woch., No. 10, 1899.

[2] Gaz. hebdom. de Méd. et de Chir., Apr. 27, 1899.

[3] Deutsch. med. Woch., Sept. 29, 1898.

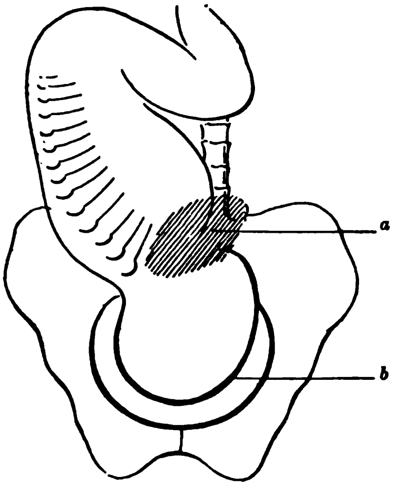

FIG. 44.—Posterior occipital presentation, head movable above the pelvis: *a*, shadow; *b*, head still above the pelvic inlet (Deutsch. med. Woch., Sept. 29, 1898).

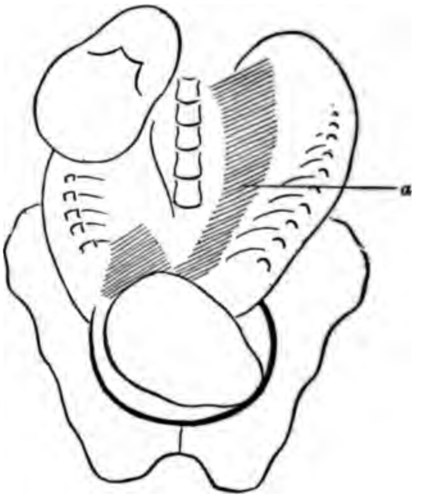

FIG. 45.—Twin pregnancy: to the left, the larger fetus in vertex presentation; to the right, the smaller fetus in breech presentation; *a*, shadow (Deutsch. med. Woch., Sept. 29, 1898).

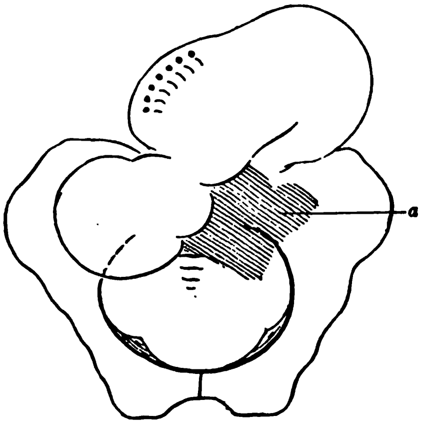

FIG. 46.—Transverse presentation: *a*, shadow (Deutsch. med. Woch., Sept. 29, 1898).

from the lumbosacral spinal crest to the posterior superior iliac spine, and the distance from the middle of the promontory to the sacroiliac synchondrosis; and, finally, the fetal positions and presentations. He shows some skiagrams of the various fetal presentations, which, however, appear largely diagrammatic.

THE HYGIENE OF PREGNANCY.

The Care of the Pregnant Woman.—B. M. Hypes[1] insists that the care of the pregnant woman should begin with conception. As soon as she finds herself pregnant, she should at once select an attendant physician and place herself under his care. Having familiarized himself with her personal and family history, he should advise her in regard to her food, its character, and when and how it should be taken; as to bathing, and how performed; as to the proper clothing, and the mode of wearing it; as to the danger of constipation, and means of prevention; as to the bad effects of coitus, and the necessity of its control; as to the care of the breasts, so as to fit them for the new function of lactation, and of the necessity, especially after the sixth month, of frequent examinations of her urine. She should be advised as to certain danger signals; and should be thoroughly impressed with the necessity of informing him at once of any abdominal pains, of any flow of blood from the vagina, of persistent headache or dizziness, of any epigastric pain, of any nausea and vomiting late in pregnancy, and of the first appearance of edema. She should be informed of the danger of lifting heavy weights, of reaching, of overexertion and fatigue, of riding over rough roads, and of taking long railroad journeys.

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[1] Med. News, Feb. 4, 1899.

Diet during Pregnancy.—E. Berwig[1] protests against an exclusive fruit-diet during pregnancy, as conducive to the development of infantile rickets and multifold neuroses. Children born after fruit-diet have been found to be peevish, irritable, and not infrequently morally imbecile, in contrast with other children of the same mother. The effect of such a diet in producing easy labor is disputed, and the evidence is decidedly conflicting. Pradon[2] has revised the ancient device of starving the mother during pregnancy, in the hope of keeping the child small, the object being to deliver a full-time child alive through a contracted pelvis. He seems to have had a better result than some of the earlier experimenters. After keeping upon low diet a woman in her third pregnancy, he delivered her with forceps of a living child weighing 8 pounds 11 ounces. Her previous confinements ended in delivery by craniotomy of children weighing 12 and 11 pounds, respectively. [It is, however, pretty well recognized that the fetus acts as a true parasite, and takes good care of its own nutrition without regard to the results to the mother, for well-nourished children are often born of women suffering from advanced disease and much emaciated.]

Puericulture during Pregnancy. Should Pregnant Women Work?—A. Pinard[3] continues his observations with regard to the influence of rest, on the part of the mother during pregnancy, upon the development of the fetus. In a previous paper he had shown by observations upon 1000 infants, 500 born of mothers who had to work up to the end of their pregnancy, and 500 born of mothers who had been able to rest for varying periods, not longer than 10 days before their confinements, that there was a marked difference in weight in favor of the latter class. In further confirmation of his views, he quotes from a table drawn up by Bochimont, based upon 4445 cases, showing the average weight of the children of women who had been compelled to work during the whole of their pregnancy, and of those who had been able to rest for periods of 2, 3 or more months. From the results set out in the table, he comes to the conclusion that the average weight of the child of a woman who is able to rest for the last 2 or 3 months of her pregnancy is greater by at least 300 gm. than that of the child whose mother is compelled to work up to the date of her confinement. The explanation of this difference appears to be the fact that the duration of pregnancy in the former class is more frequently normal; while in the latter it is often prematurely interrupted. The more frequent occurrence of premature confinements among the workers he attributes to a tendency to premature expulsion of the ovum, produced by a greater descent of the uterus into the pelvis. The truth of this assertion is to some extent confirmed by the observations of La Torre upon the development of the fetus in women with contracted pelvis. La Torre's conclusions are that premature confinements are more common in women with normal pelves than in women with contracted pelves; and that the products of conception attain the same degree of development in the former as in the latter class. Pinard, from his experience, goes farther than this, and holds that the average weight of the children of women with contracted pelves is greater than the average weight of the children of women with normal pelves. The condition of a woman with a contracted pelvis he regards as comparable to that of a woman who is able to rest during the last few months of her pregnancy, in that the child is lying mainly in the abdominal cavity, and to a less extent than usual in the true pelvis. In the case of a woman, on the other hand, who has to work standing or sitting, the tendency is for the child to lie low in the pelvis, and, as a result of this, premature delivery not uncommonly occurs. Many factors, no doubt, enter into the question of the development of the child; and it is asserted by some writers that the physique of the mother herself must largely determine the size of her child. Pinard cordially agrees with Bochimont's recommendation that, "from the point of view of humanity, from the point of view of the increase of the population, from the point of view of the evolution of the French race, it is necessary that the public authorities should intervene to safeguard the pregnant woman during the last 3 months of her pregnancy, and the fetus during the last 3 months of its intra-uterine life."

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[1] Medicine, Sept., 1898.

[2] Monats. f. Geb. u. Gynäk., Jan., 1899.

[3] Ann. de Gynéc., Aug., 1898.

Cycling during Pregnancy.—Closely allied to the foregoing is an article on the use of the bicycle during pregnancy by Lucas-Championnière,[1] who mentions the case of a woman, aged 23, who began cycling just when she became pregnant for the second time, and during 3 months repeatedly rode distances of about 30 miles without ill-effect. After riding up a hill at the end of a long journey, she had pain and hemorrhage, which ended in abortion. This occurrence, however, by no means weakens his opinion that, even for pregnant women, cycling has far more advantages than inconveniences. It is an exercise that demands no great expenditure of force, and that employed may be regulated at will. It produces an immediately favorable effect upon the respiration and circulation, and in an indirect manner acts advantageously on the gastrointestinal functions. Its direct action upon the internal organs of generation may be ignored, except under conditions of great fatigue, and, apart from the menstrual period, cycling is an infinitely less fatiguing mode of progression than walking, because the weight of the body is not raised and lowered with every step. Apart from the risk of accident, moderate cycling is thus a valuable exercise during pregnancy. There are, however, conditions that cause undue effort, and must, therefore, be avoided. Thus, learning to ride a bicycle during pregnancy is out of the question. Riding up hills, also, must be avoided; and fast riding is also unsuitable during pregnancy. Lastly, the distances travelled must not be sufficient to cause general fatigue. [All this may be sound in theory, but not in practice. Hills cannot be avoided, either coming or going; the patient will unintentionally ride rapidly and overfatigue herself. None of us would feel justified in assuming the risks of authorizing or countenancing cycling in pregnancy.]

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[1] Jour. de Méd. et de Chir., Dec. 10, 1898.

PATHOLOGY OF THE FETUS AND OF THE FETAL APPENDAGES.

Malignant Deciduoma.—J. Neumann[1] treats of pulmonary metastasis in malignant deciduoma. A woman, after bearing a living child, was subject to persistent hemorrhage, for which the uterus was repeatedly curetted. From examination of the debris removed, Neumann made a diagnosis of malignant neoplasm. The uterus was extirpated months after delivery, but the woman died 2½ months later, from metastases. There were numerous round knots, up to the size of an apple, in the lungs, partly superficial, partly in the deeper parenchyma, in color ranging from grayish to brownish-red; some of the masses were necrotic in the center, others were suppurating. After discussing the symptomatology and diagnosis of the disease (on the basis of his own experience and the statements of Eiermann, Schmorl, Williams, Dorland, and others), and the success of early extirpation of the uterus, Neumann points out that hemoptysis occasionally occurs during pregnancy, though neither tuberculosis, heart-disease, nor other cause for it can be detected. He has met with such hemorrhage in 2 cases in the early months of hydatid mole, but otherwise normal, pregnancy, the patients feeling perfectly well. After a few weeks the hemoptysis ceased and the woman remained quite healthy. [It is not impossible that in such cases there may have been embolic infarcts, due to the escape of placental giant-cells, such as Schmorl has described.] Driessen[2] writes of a woman, aged 34, who was admitted into Treub's ward 3 months after aborting at the fifth month. The patient had been 5 times pregnant, and hitherto had never carried a child to term. No history of vesicular mole could be obtained. The curet was used on the day of admission. Severe hemorrhage ensued, and within a few days the temperature and pulse rose. Dyspnea set in, and crepitating rhonchi were detected on auscultation. In less than 3 weeks the patient died, with all the clinical symptoms of acute tuberculosis. Careful examination of the viscera was made after death, both by dissection and with the microscope. The lungs were studded with numerous foci—some of them as large as an apple. They were of a dark-red color, many breaking down in the middle. In both apices were old, calcified tuberculous nodules. In the posterior part of the uterine wall lay a new growth 1¾ in. in diameter. On section it precisely resembled the metastases in the lungs. In the right broad ligament, close to the tube, lay a deposit as large as a cherry. No similar deposits were found in any of the thoracic or abdominal viscera, and the organs were normal. Microscopically, the primary uterine growth and the metastases of the lungs proved identical. Histologically, they seemed to be sarcoma. In the discussion, Veit maintained that there is some unknown pathologic condition associated with gestation which is the common origin of vesicular mole and deciduoma malignum. It may cause the development of an innocent mole; it may set up a mole which proves malignant, ending in a deciduoma; or, on the other hand, it may cause the direct appearance of a deciduoma unassociated with a mole. Women may, of course, bear children after being delivered of a vesicular mole. This means that the unknown disease, which ends in this case by developing a benign mole, has undergone cure or disappeared spontaneously before subsequent impregnation.

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[1] Münch. med. Woch., No. 49, S. 158, 1898.

[2] Centralbl. f. Gynäk., No. 40, 1898.

Cystic Degeneration of the Chorion.—Keiffer[1] seriously attributes the development of vesicular mole to the effect of emmenagogs taken during pregnancy. They set up proliferating arteritis, which interferes with the normal development of the placenta. He noted that in 3 cases in which vesicular mole had developed the patients had taken emmenagogs—piscidia, viburnum, saffron, and sodium salicylate. The last drug had been prescribed to a young primipara for amenorrhea. Hemorrhage followed, and Keiffer diagnosed pregnancy. In spite of appropriate treatment, miscarriage occurred at the sixth month, and a vesicular mole was expelled. No normal placental tissue could be found; and there was marked endometritis, many vessels in the membranes being blocked by their proliferating endothelium. J. C. Kennedy[2] remarks that it is generally conceded now that hydatidiform mole is a proliferative degeneration of the chorionic villi; that the origin of this degeneration seems to be maternal; that among the maternal predisposing causes syphilis holds an important place. Just how the vesicles constituting the mole are formed is not satisfactory to all. Since the origin of this degeneration seems to be maternal, the degeneration of the chorion must antedate and produce the death of the fetus. A healthy fetus and a hydatidiform mole have been known to develop side by side. This would lead us to believe that the degeneration of the chorion was due to fetal disease. The weight of authority, however, seems to be that the mole does not result from disease of the embryo. More Madden[3] states that there is no possibility of discriminating with certainty between a myxomatous mole and the normal product of impregnation *in utero* before the completion of the fourth month of gestation. C. E. Black[4] reports an interesting case in which the mole invaded the uterine wall, and finally perforated into the tissues beneath the peritoneum and through the left vaginal wall, the patient almost bleeding to death. Eight weeks later she was delivered spontaneously of a large vesicular mole accompanied by no semblance of fetal tissue. Black remarks that in at least one-third of the cases hemorrhage is either absent or so slight as to attract no attention.

Amniotic Infection before Rupture of the Membranes.—Lehmann[5] states that it is generally admitted that the ovum may become infected in one of two ways: 1. In the first place, after premature rupture of the membranes, either by microorganisms carried directly into the ruptured ovum by the finger of the operator or by instruments. 2. The ovum still remaining intact, infection of the amniotic fluid occurs in the course of a generalized infection of the mother of marked gravity or of a more or less prolonged duration. In the latter case, infection of the amniotic fluid is secondary to fetal infection. The author reports 2 cases in which, in healthy women at term, the fetus suffering (as shown by considerable slowing of the heart-beats), on rupture of the membranes the amniotic fluid was found to be horribly fetid—putrid. He explains this only by the penetration of microorganisms into the amniotic cavity from infection of the intact ovum.

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[1] L'Obstétrique, Mar. 15, 1898.

[2] N. Y. Med. Jour., Sept. 17, 1898.

[3] Brit. Med. Jour., Sept. 17, 1898.

[4] Med. Fortnightly, July 15, 1899.

[5] Gaz. hebdom. de Méd. et de Chir., April 6, 1899.

Bacterial Placentitis.—X. Delore[1] claims that *placentitis* is an unfortunate term, since the altered organ shows neither the redness, the swelling, nor the new vessels which are the classic changes of inflammation. The changes that are noted are as follows: The decidua is thickened and lardaceous in many points. The syncytium and cellular layer of Langhans disappear; the villous stroma undergoes a myxomatous transformation; the endothelium of the capillaries of the villosities proliferates and obliterates the caliber of the vessels, whose circulation ceases. At the same time, in the intervillous spaces the maternal blood settles in fibrinous laminas of a hyaline aspect at first; but which, by successive stratification, become thickened and form opaque layers of a grayish-white color. The capacity of the spaces is thus diminished, and they may become obliterated. The main change, however, is the modification of the connective-tissue elements which surround the fetal vessels; these fibers become more abundant and more rigid; their proliferation is such that they invade the interior of the vessels, the plasmatic stroma, and the thrombus itself; a sclerous tissue thus predominates, which penetrates all the elements of the placenta and produces confusion even in histologic sections. In consequence of the obliteration of the maternal and fetal circulations, some groups of villosities are discolored and necrobiotic. To these primary lesions there are often added others which are secondary, as hematomas and gelatinous cysts. Especially marked are the phenomena of *retraction*, which are purely mechanical, and not only produce curious deformities, but also grave strangulations. Finally, after an indefinite period, the tissues undergo alterations and neoplastic formation. In this last stage fatty granulations infiltrate everything, the normal elements undergoing caseous degeneration; and absorption and atrophy complete the process. Thus, the delicate structure of the placental tissue is disorganized and the physiologic function of the villosities is abolished. Although all these lesions seem to be of a uniform pathologic process, it is possible to establish some distinctions; thus, the alterations in the decidua may be studied under the term *decidualitis;* those in the villosities, under the term of *villositis;* finally, the thromboses characterize the deposits of fibrin in the spaces reserved for the maternal flood, and partake of a union of decidualitis and villositis. The main cause of the trouble Delore believes to be bacteria, which act either directly or through their toxins. He compares the placenta to the kidneys, both anatomically and functionally; and as there is a well-recognized condition, known as bacterial nephritis, so there can be an analogous condition in the placenta. The passage of microbes through the placenta has been demonstrated by numerous experiments. Thus, the anthrax-bacillus has been found there by Wolf, Fränkel, Marchand, Straus, Chambrelent, Arloing, and others; the pneumonia-bacillus by Netter, Friedländer, Talaman, Babès, Satullo, and others; the bacillus of septicemia, by Hanot, Luzet, Satullo, and others; the bacillus of tuberculosis, by Charrin, Sabouraud, Chauveau, Satullo, and others; that of typhoid fever, by Chantemesse, Vidal, Frascani, Straus, Chambrelent, Eberth, Satullo, and others; that of glanders, by Löffler, Cadéac, and others; that of acute rheumatism, by Pollack, Schäffer, and others; that of the eruptive fevers, by Rickert, Busckardt, Kuoned, and others. Satullo noted the transmission of hydrophobia; and all clinicians have seen the transmission of variola and syphilis. Retention of the micro-organism is the necessary corollary of their passage, and when retained they give rise to pathologic processes (placentitis, most commonly noted as villositis and thromboses). Delore formulates the following conclusions: 1. Placentitis is of bacterial origin. 2. The germs penetrate by the hematogenous method or by the uterine passage; this latter is an ascending infection. 3. The two special forms are *villositis* and *decidualitis*. 4. Thrombosis is provoked by bacteria, which sometimes traverse the organ, sometimes fix themselves upon the surface or in the villous walls, and at times disappear, though leaving traces of their passage.

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[1] Jour. de Méd. de Paris, Apr. 16, 1899.

Placental Syphilis.—Bönet[1] states that hypertrophy of the placenta coincides with a casual fetal product; it is one of the most important signs of placental syphilis, as the researches of Pinard in particular have demonstrated. There is a variety of microscopic lesions, such as hemorrhagic foci, thromboses, white infarcts, and fatty degeneration. The histologic alterations in the vessels consist in thickening of their inner walls, considerable narrowing of their caliber, and embryonic infiltration in their external tunic and in the periphery of the organ. There are noted, also, an hypertrophy of certain villosities and the existence of embryonal traces in their thickness. The vascular lesions appear to be the most important. Delore[2] presented to the Medical Society of Lyons a placenta from a 7 months' pregnancy, weighing 900 gm., while the child weighed 1600 gm. It presented syphilitic gummas, and a great number of the villosities were obliterated. The child showed superficially confluent petechiæ.

Tumors of the Placenta.—Albert[3] has collected all the recorded cases of placental tumors, and adds particulars of 4 others. The 36 previously recorded tumors are classified as follows: 14 cases of myxoma fibrosum, 10 of fibroma, 9 of angioma, 2 of sarcoma, and 1 described by Merttens as hyperplasia of the chorionic villi. Albert criticizes the naming of the last three. Sarcoma implies malignancy, and in the 2 cases so described there was no evidence at all of malignancy. He thinks these two, as well as Merttens's tumor, would be better described as angioma fibromyomatosum. The author's 4 cases were all of the nature of angioma. The site of origin of these tumors he concludes to be the allantois, inasmuch as neither amnion nor decidua had anywhere any relation to the tumor. The cause of these tumors was given by Goodhart as the organization of blood-clot; by Storch, as a previous endometritis; by Hildebrandt, as degeneration of placental villi under the influence of dilatation of vessels and stasis of blood in them. The author attributes the growth to a proliferative rather than a degenerative process in the villi. As to clinical symptoms, in 4 cases there was hydramnios, in 6 there was severe hemorrhage, and in 1 eclampsia. The prognosis for the child is bad; 12 only out of 36 were stated to be normal, 10 were premature, 3 stillborn. In 5 cases in which labor was at term, the child did not reach the average weight. Bode and Schmorl[1] met with an instance of a placental tumor with the characters of a fibroma, but resembling also the tumors described as myxoma fibrosum or fibrosarcoma of the placenta. It was the size of a fist. In cases which the authors have collected there has usually been no symptom pointing to any abnormality; the labors have been generally normal and at term, though sometimes premature. Once or twice there were twins. Severe bleeding was the most frequent after-effect. There appears to have been no permanent deterioration of the mother's health.

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[1] Gaz. hebdom. de Méd. et de Chir., Nov. 10, 1898.

[2] Lyon méd., July 10, 1898.

[3] Arch. f. Gynäk., vol. lvi., part 1.

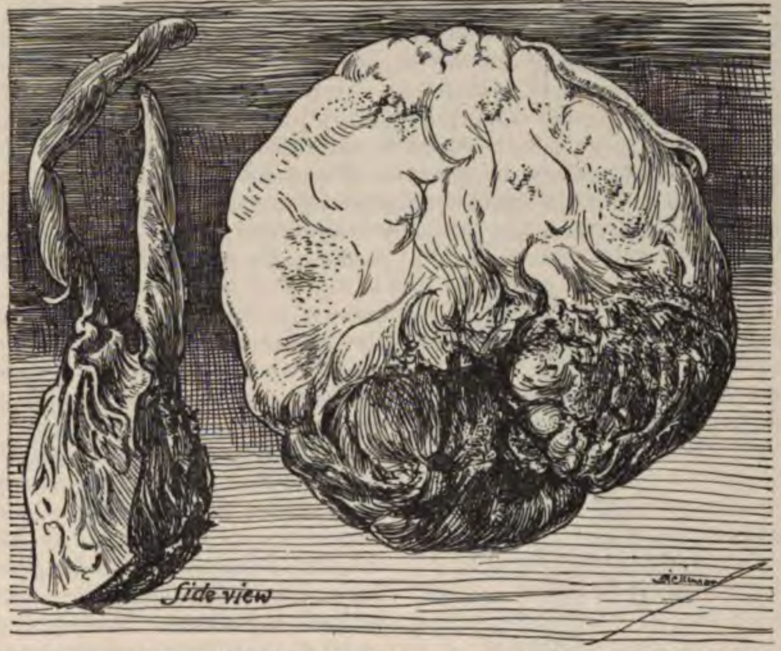

FIG. 47.—Extensive degeneration of the placenta (about one-half life size) (Brooklyn Med. Jour., Jan., 1899).

The placenta in the author's case presented a groove dividing it into 2 parts, the larger being normal placenta, while the tumor formed the smaller part. The latter was smooth on its maternal surface, and reddish-brown; the amnion passed over it in the usual way. On section, it appeared nearly homogeneous and brownish or grayish-red. Microscopically the tumor had no proper capsule. Two conditions were distinguishable: on the one hand, a thickened fibrous tissue containing numerous large, branching vessels; on the other hand, the parenchyma proper of the tumor; in this round and spindle-cells could be observed, rather larger than white blood-corpuscles, and some of them branching. The cells lay largely in groups separated by the fibrous tissue. In places the vessels were so large and numerous as to suggest the condition of angioma. The central parts of the tumor showed in places a mucoid degeneration. [The tumor was to be considered not as a sarcoma, but as a fibroma very rich in cells; or as a fibromyxoma teleangiectodes.]

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[1] Arch. f. Gynäk., vol. lvi., part 1.

Extensive Degeneration of the Placenta.—R. L. Dickinson[1] presents a fresh specimen of placenta from a patient, 42 years old, who had never had syphilis, but had heart-murmurs and chronic nephritis. The first 6 children were living. The seventh pregnancy ended at the seventh month; the fetus being dead, and the placenta retained. The present (eighth) delivery was of a recently dead child. The membranes tore off completely, and were delivered hanging to the child's shoulder. A large clot lay on the lower edge of the placenta, where the dark shading is seen (Fig. 47). The weight of the placenta was about ¾ pound, the dimensions 5¾ by 5 in.; the thickness at the pallid edge, ¼ in.; at the thickest part, 1½ in. The upper two-thirds of the organ were thin, yellowish-white, hard to the touch, and translucent on the edges. The practical interest to the obstetrician is that with so extreme a diseased condition, there should be delivered at the seventh month a child fully developed for that period; and that with half a placenta there should come full development. The pathology was thrombosis, obstruction of vessels, white infarction, placentitis, edema, exudate, induration, amyloid degeneration, fatty degeneration. White infarction, from the size of a bean to that of an English walnut, and usually on the maternal surface, is due to a hyaline or amyloid degeneration (Jacobson). The decidual vessels are affected; the blood coagulates in the intravillous spaces; the villi are obliterated. When few in number and of small size, the white infarcts are innocuous. Fehling says that they are the most frequent cause of fetal death—in this case having nephritis as the probable origin. Syphilis, as a rule, gives a large, heavy, pale placenta—not the edematous placenta. The largest placenta we see is the edematous placenta, in which one can bring out masses of sodden, pallid, friable material at times as great in bulk as the child itself.

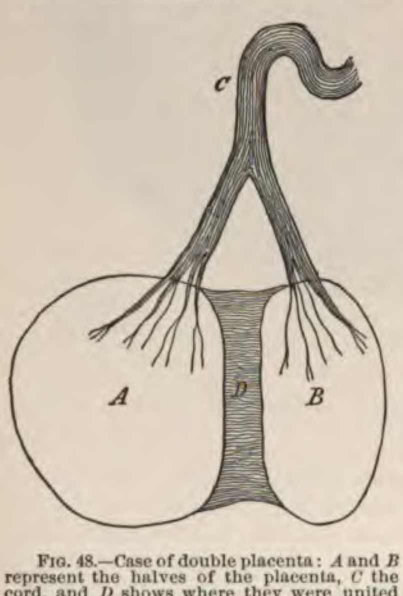

FIG. 48.—Case of double placenta: *A* and *B* represent the halves of the placenta, *C* the cord, and *D* shows where they were united by membrane. The smaller half (*B*) had to be removed from the wall of the uterus: but the larger half (*A*) came away naturally (British Med. Jour., Dec. 3, 1898).

Double Placenta.—Two interesting cases of this rare anomaly are reported by W. H. Neale[2] and E. J. Beards.[3] In Beards's case the halves were exactly equal in size and dimensions, circular in shape, and measured 6½ in. in diameter, their circumferences being united for about 1 in. The cords were separate for about 8 in. from their insertion, when they became fused, forming a single cord of unusual thickness. In

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[1] Brooklyn Med. Jour., Jan., 1899.

[2] Brit. Med. Jour., Dec. 3, 1898.

[3] Ibid., Apr. 8, 1899.

Neale's case there were 2 distinct placentas, one rather larger than the other, with sharply defined edges; nowhere had they been united to each other except by membrane. Vessels came from each half and united to form one cord.

The Preventive Treatment of Paternal Hereditary Syphilis during Pregnancy.—That certain drugs may be carried through the maternal vessels to the unborn fetus is an undoubted fact; and the possibility of so treating the fetus *in utero* as to prevent a threatened hereditary disease, without interfering with the health of the mother, has long been a subject of speculation and inquiry. The best illustration of this type of fetal therapeutics is to be found in a recent lecture by Fournier[1] of Paris, in which the following propositions are maintained: 1. That the *mediate* treatment through a healthy mother of a fetus that is threatened with paternal hereditary syphilis constitutes a powerful safeguard for the child. 2. That in numerous cases in which it has been resorted to early the child escapes all the dangers that are proper to this form of hereditary syphilis, especially the risk of its death before birth or soon after. 3. That this fortunate result is so frequent as not to have escaped notice, and, what is rare in questions of this kind, there is an almost unanimous agreement among syphilographers and obstetricians of the present day in urging the necessity for this kind of therapeutic intervention. 4. That the consensus of opinion imposes upon all physicians the obligation to act in such a case, and to institute the treatment for the child through the mother, which has become a real duty on their part. This treatment is rational, because it has for its object the introduction of an antidote (mercury or potassium iodid) for the threatened infection of the fetus. That the drug does react on the fetus experimental proofs are given. Porak, in 1878, found potassium iodid in the urine of the fetus 40 minutes after it had been given to the mother. Cathelineau and Stef found mercury in the ashes of a burnt fetus whose mother had been treated with that drug. Concerning the noneffect of this prenatal treatment upon the mother, while some have claimed that it might cause or increase the gastric troubles that are incident to pregnancy, and the anemia, also, nothing of the kind really happens. Nor will the tolerance of specifics that has sometimes been observed among syphilitics interfere with the prophylactic results to the fetus. In the majority of cases the treatment is a real safeguard for the child. When a healthy woman marries a syphilitic husband, and the specific treatment is properly given during the first pregnancy, she almost always goes to term and the child is born alive and healthy. Much depends upon the time of beginning the treatment, for if it is postponed too long from the date of conception the risk is increased.

Monstrosities.—Interesting cases are reported as follows: G. W. Thompson,[2] a case of thoracogastrodidymus occurring in a triplet birth; W. P. Long,[3] a case of thoracopagus; C. P. White,[4] a case of sympus; Coronado,[5] a case of hemicephalic, ectromelic, exomphalic fetus, born in Manzanillo, Cuba, three months after the recent bombardment, and (erroneously) supposed by the author to have resulted from fright; W.

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[1] Sem. méd., Nov. 30, 1898.

[2] Clinical Review, May, 1899.

[3] Jour. Am. Med. Assoc., Oct. 15, 1898.

[4] Lancet, Nov. 5, 1898.

[5] Habana Med., vol. i., No. 5.

Glegg,[1] a case of anencephalus; J. R. Macmahon,[2] a case of absence of the abdominal wall, bladder and anus, with a semicloacal condition and bilateral external genitalia; W. M. Hestle,[3] cases of extromelus, delivered from the same mother, a colored woman, in the first, fourth, fifth, and sixth pregnancies, all being male children. The other children were females, well formed and living. A curious coincidence, according to Hestle, was that in each of the pregnancies resulting in the morbid product the patient was frightened at the third month of gestation by seeing an opossum. It is a well-known fact that the legs of an opossum are very short, and therefore that the feet are very close to the trunk. The auricle in the opossum is rudimentary, and almost invisible on casual inspection; in the deformed fetuses there was an absence of auricular development. Thompson's case is one of the most wonderful monstrosities, perhaps, ever seen—a triplet birth with one single child and a well-defined case of thoracogastrodidymus (1 perfectly formed body with 2 heads, 2 necks, 4 arms and hands, 4 legs and feet. The single child, a male, weighed 3 pounds; the 2 bodies joined were females, and weighed 4 pounds. They were born at the seventh month of gestation. The joined children died at the expiration of 12 minutes; the single child was stillborn. Each of the twins breathed independently of the other, showing that each was possessed of a separate set of respiratory organs. The male child had a separate placenta and a separate amniotic membrane. The females were enclosed in a single amniotic sac, and were attached by a single cord to a single placenta). Long's double monstrosity was 12¾ in. long and weighed 6 pounds. Both fetuses were well developed and symmetrical, of the male sex, and united along the sternoclavicular articulation to the umbilicus. White's case was a siren monster of the variety sympus dipus. The lower limbs were united as far as the bases of the little toes, the union consisting of skin and subcutaneous tissue. There was no anus, and the external genitals were represented by a semicircular tag of skin ⅜ in. in diameter. Barnes[4] states that consanguineous marriages and incestuous connections must be admitted as important causes of congenital deformity. In a single case of the intermarriage of first cousins there resulted 10 births; of these, 3 sons were idiotic and otherwise defective, and 1 was insane; of the daughters, all married and all were sterile. In another family, the marriage of first cousins resulted in 6 births, 4 of which were idiotic and deformed.

THE PATHOLOGY OF PREGNANCY.

The Pernicious Vomiting of Pregnancy.—None of the many theories explaining the vomiting of pregnancy is, according to C. S. Bacon,[5] indisputable. A large number of them are theories of reflex vomiting, which assumed a peripheral source of irritation in some part of the genital tract. One theory assumes a stretching of the uterine fibers and disturbance of the uterus by the growing egg. G. Hewitt believes that vomiting is due to displacement of the uterus. Others believe irritation in or inflammation of the cervix, with erosion of the os externum, to be the cause of vomitus gravidarum. Horowitz believes that inflammation of the parenchyma of the uterus is the cause of vomiting, a view similar to that held by Veit, who finds in endometritis a very important etiologic factor. Tusskai assumes an irritation of the peripheral coat of the uterus, due to trophic disturbances following the growth of the uterus. The theory of Kaltenbach, that hyperemesis gravidarum is due to hysteria, cannot explain all cases, for many occur in nonhysteric subjects; but there is no doubt that a psychopathic condition is a very important element in the causation of the disease. The theory of direct vomiting due solely to immediate irritation of the vomiting-center by poisons circulating in the blood, or to nutritional changes caused by disturbance in the circulation in the medullary centers, cannot be maintained, for reflex action cannot be wholly ignored. Hence, we must assume at the present time, as the only theory that will explain all the facts and make of vomitus gravidarum a single disease, one that takes account of the condition of the vomiting-center and also of the sources of peripheral irritation. We must assume that in two-thirds of all cases of pregnancy there exists an increased irritability of the medullary center, due wholly or in part to one or both of these 2 factors: 1. Nutritional changes resulting from circulatory disturbances; 2. Poisoning from toxic elements circulating in the blood. We must further assume that this abnormally irritable center is acted upon by different impulses sent from one or more of a variety of peripheral sources. Among the most important causes of reflex irritation are an incarcerated retroflexed uterus, abdominal adhesions of the uterus, pathologic changes in the uterine wall resulting from endometritis, pelvic congestion, constipation, and chronic gastritis. To these sources of afferent impulses must be added the psychopathic or hysteric condition, which is of especial importance in the more serious cases. The knowledge of the etiology of vomiting of pregnancy gives us the clue to its successful management. Barth[1] observes that uncontrollable vomiting in pregnancy depends upon 2 factors in varying proportions; a **nervous influence** emanating from the uterus and reflected upon the nerves of the stomach, and an **autointoxication** from defective function of the liver. The clinician should carefully inform himself in regard to the pathologic past of the patient. Klein[2] believes, in common with Kaltenbach and Frank, that only those cases are to be considered as pernicious vomiting in which the nourishment of the mother or child is profoundly influenced, and in which the disorder persists. He thinks many cases are distinctly neurotic and some are hysterical. If unchecked, the condition tends to pass through 3 stages. In the first stage, vomiting occurs immediately after meals; in the second, it comes on spontaneously or at the mere thought of taking food; in the third, symptoms of extreme debility are present—fever, faint odor of the skin, delirium, syncope, death. The first 2 stages are best treated by purely dietetic means, combined with perfect mental and bodily repose. Fluids alone should be given, such as milk, thin soups, fruit-juice, and mineral waters. Tea, coffee, and cocoa must be forbidden, as they increase the tendency to vomit. Should this dietetic treatment fail after a few days' trial at the patient's home, it is best that she be treated in a nursing institution, where the diet can be diminished with due punctuality and strictness. [This, while theoretically correct, is impracticable.] Klein does not recommend treatment by suggestion nor by drugs, nor any local appliances, unless a definite lesion, like impaction of the retroflexed uterus in the pelvis, exists. Even in the third stage of hyperemesis the induction of premature labor is rarely required. [The third stage, in our opinion, should never be permitted to appear. If the other measures fail, the termination of the pregnancy should not be too long delayed.] Bacon[1] says that the more serious cases may, as a rule, be prevented by caring for eating, bathing, clothing, exercise, and sleep, preventing constipation, and especially securing a healthful mental condition of the patient. For maintaining a normal circulation the horizontal position, stimulation of the cutaneous capillary circulation, the use of stimulant and vasomotor regulators, and the injection of artificial blood-serum, are the measures that promise the most. For antagonizing the circulating toxins, all measures that stimulate the renal and intestinal emunctories are indicated. Constipated bowels should be carefully emptied with enemas and massage; a gastric catarrh may be treated with lavage; a displaced uterus reflexed; and pelvic congestion corrected by icebags. In extreme cases, Bacon proposes the subcutaneous injection of large quantities of normal saline solution, because of its effect in improving the circulation, in the elimination of toxins through the clogged emunctories, and in supplying 2 important elements of food—water and chlorids.

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[1] Brit. Med. Jour., Apr. 8, 1899.

[2] Lancet, Sept. 10, 1898.

[3] Va. Med. Semi-monthly, June 23, 1899.

[4] Dublin Jour. Med. Sci., Nov. 1, 1898.

[5] Jour. Am. Med. Assoc., vol. xxx., No. 7.

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[1] Sem. méd., Nov. 16, 1898.

[2] Zeit. f. Geb. u. Gynäk., Band 39, Heft 1.

I. Fischer[2] reviews the treatment of pernicious vomiting. He states that if the patient has gastric catarrh, Dimoser has cured his cases by lavage, employing a solution of boric acid and sodium bicarbonate. In some cases, gastric irritability is lessened by giving food in small quantities at frequent intervals. **Rectal feeding** puts the stomach at rest and keeps up the patient's strength. R. Frommel,[3] F. Hermanni,[4] Rech, and Schaffer recommend the use of orexin (phenyldehydroquinazolin) in 5-gr. capsules 2 or 3 times daily. Picard, Hayem, P. Gallois, and Bonnel have obtained good results from the use of **inhalations of oxygen** or the administration of oxygenated water. Acting on the theory that the condition is a form of toxemia, the subcutaneous injection of a normal salt solution has been employed. Objections to this treatment were raised, to the effect that, owing to the lowered vitality of the patient, abscess-formation followed. Frommel and Chazan have reported cases in which suggestion has caused a cessation of this most obstinate condition. Chazan, by pointing out to his patient the danger of abortion, which might have to be resorted to should the vomiting not cease, caused immediate cessation of the vomiting. Apostoli has demonstrated the value of galvanism. He employs from 5 to 16 ma. as the strength of his current. There are on record 5 cases of the successful employment of cocain muriate by hypodermic injection in the hypogastric region. Kehrer recommends dilatation of the cervix only in cases in which all other causes have been looked for and treated, if present. Tuszkai has cured some cases by vaginal douches with hot sterile water. La Torre reports cures from the use of ichthyoglycerin tampons in 3 cases in which the os and cervical canal were unduly sensitive. Vaginal poultices may be tried. Water charged with carbon dioxid, or the introduction of the free gas into the stomach, is very effective at times. Lefour[1] reports a cure following energetic spraying of the entire spinal column with methyl chlorid. Bordier and Verney[2] treat hyperemesis gravidarum by the simultaneous galvanization of both vagi. An indifferent electrode of about 10 square inches is placed on the epigastrium, while 2 small electrodes are set on each side of the neck, between the 2 lower bundles of the sternomastoids. These are connected with the positive pole of the constant current; they may be conveniently replaced by a single curved electrode, the two ends of which are in the positions indicated. This is kept in place by india-rubber bands. A practical detail is to employ a sudden, instead of a gradual, increase of current the moment the patient feels any nausea. R. N. Foster[3] claims to have had cures follow simple bleeding of the cervix by means of an ordinary gum-lancet. G. W. Harris,[4] in cases of uncontrollable vomiting of pregnancy, in which the woman's health begins to fail and emaciation becomes marked, counsels insistence on terminating the pregnancy by rapid dilatation and the emptying of the uterus. Dumas[5] describes an instrument which, he says, has rendered him great service in 4 classes of cases: 1. Intractable vomiting of pregnancy. 2. Debility of puberty in young girls. 3. Chlorosis. 4. Undeveloped breasts. It consists of a hollow hemisphere to inclose the breast, with an aspirating-bulb. The sphere is applied so as to surround the breast before rising in the morning, and aspiration is effected by means of the bulb. The aspiration should cease as soon as it begins to cause pain. The apparatus is then left in place from 20 to 30 minutes. The treatment lasts from 3 weeks to 6 months, according to the nature of the case.

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[1] Loc. cit.

[2] Klin.-therap. Woch., Sept. 18, 1898.

[3] Therapist, June 15, 1898.

[4] Therap. Monatsh., Jan., 1899.

Simple and Malignant Jaundice of Pregnancy. — W. B. Young[6] reports 3 cases of this complication, and reviews the literature of the subject. Winckel says that jaundice is a rather rare disease of pregnancy. He has observed it only once in the catarrhal form, and of an aggravated type. Carl Braun observed the grave form only once in 28,000 pregnant women. Spaeth saw the disorder only 3 times in 14,061 pregnancies; Duncan, once in 10,000 cases. All the authorities agree that the same cause or causes that bring on an attack in the non-pregnant woman will produce it in the pregnant, other things being equal. Carreau says that as to the pathology of grave jaundice 2 factors are necessary, the blood and the bile; but experience has long since proved that the mixture of these 2 bodies is inoffensive. The symptomatic yellowness due to the biliary retention may last for weeks and even months without sensibly altering the health, when all at once, under some unknown influence, the phenomena of grave jaundice show themselves and carry off the patient in a few days. Every case of jaundice occurring in pregnancy should be looked upon as serious, jeopardizing both mother and child. When a simple icterus takes on a malignant type, it is very insidious; but within a short time it becomes rapid in its progress, and the woman is in a fatal condition before the physician is aware of her imminent danger. This change is gradual, and usually manifests itself by a rise of temperature, this being absent in case of simple icterus. Cerebral symptoms—headache, difficulty in breathing, and delirium—rapidly develop. The course of the disease is rapid toward a fatal termination in a few days. The treatment can merely be symptomatic. It avails nothing to empty the uterus in the interest of either the mother or child.

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[1] Sem. méd., Feb. 23, 1898.

[2] Arch. d'Elect. Méd., May 15, 1898.

[3] Med. Brief, Feb. 1, 1899.

[4] Med. Age, Aug. 25, 1898.

[5] Jour. de Méd. de Paris, June 19, 1898.

[6] Med. News, Nov. 12, 1898.

Appendicitis During and After Pregnancy.—Bouillier[1] discusses this subject on a basis of 22 observations, considering (1) the influence of pregnancy on appendicitis, and (2) the influence of appendicitis on pregnancy. As to the first point, he concludes that pregnancy plays no part as a factor in the causation of appendicitis. The pregnant woman is not more subject to this form of inflammation than the nonpregnant. The influence of appendicitis on pregnancy is, on the other hand, well marked. In 7 out of the 22 cases abortion at about the fourth month resulted, either before or after surgical treatment. Spontaneous abortion may be due either to the febrile condition and the affection of the general health, or to infection of the pelvic organs from the appendix; possibly to both factors. The mortality in the 22 cases was: maternal, 30.4%; fetal, 47.8%; consequently pregnancy renders the prognosis of appendicitis more serious. The treatment is that of appendicitis, the pregnancy not constituting a contraindication. Early intervention is desirable, since if the case is left there is a grave danger of puerperal complications due to general infection or to direct infection of the pelvic organs. Bué[2] finds also that the gravity of appendicitis is considerably increased when that disease is complicated by pregnancy. Various circumstances in pregnancy tend to light up acute mischief in a quiescent, but previously inflamed, appendix. These are the frequent constipation of pregnancy, mechanical disturbance of the parts due to growth of the pregnant uterus, and congestion of the pelvic organs. [One author estimates the mortality of appendicitis during pregnancy at 31.2%, and that of appendicitis in general at 12.8%.] Pinard[3] emphasizes the statement that every case of appendicitis diagnosed during pregnancy demands intervention. The symptoms to be expected in the first few days of the disease are a temperature gravitating around 38° C., and a pulse of about 100. Vomiting may continue or give place to frequent eructation. Occasionally there is a diarrhea, usually succeeded by a persistent constipation. There may always be noted a marked contraction of the right side, which has been called a muscular defence, and coincides with a slight tympanites. Marked tympany does not appear till later. Such a course of symptoms will suffice for a diagnosis. Ordinary indigestion will not give rise to such a train of symptoms. Hepatic colic and affections of the liver present symptoms peculiar to themselves. The vomiting of pregnancy only gives rise to pain localized to the diaphragmatic attachments, and acceleration of the pulse and elevation of the temperature are exceptional. Extrauterine pregnancy situated on the right side should not be confounded with appendicitis. Rupture of the fetal cyst is accompanied by characteristic symptoms of hemorrhage followed by signs of peritonitis. Typhoid fever should not be confounded with appendicitis. Pinard concludes that the diagnosis of appendicitis during pregnancy is generally easy, and every case so diagnosed demands intervention.

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[1] Thèse de Lyon, 1897.

[2] Méd. mod., Mar. 12, 1898.

[3] Bull. de l'Acad. de Méd., Feb. 14, 1899.

Valvular Cardiac Disease.—C. Vinay[1] discusses at full, both socially and medically, the question, Should a girl of marriageable age, subject to heart-disease, be allowed to marry? He agrees with Jaccoud, Huchard, and others that matrimony is not to be forbidden when the lesion is compensated and no complication has arisen. But the patient must be reminded that repeated pregnancies will influence the cardiac disease prejudicially. On the other hand, marriage must be forbidden if evident signs of insufficiency have been detected, such as pulmonary congestion, hemoptysis, and irregular pulse. Most serious in this respect is persistent albuminuria with hypertrophied heart, which is certain to involve grave trouble during pregnancy and to compromise the child's life. Even when a patient is allowed to marry, she must be carefully watched when she becomes pregnant. During gestation some of the worst complications due to thoracic and renal changes are very apt to set in, unless the patient modifies her habits and her diet. The physician should insist upon repose, milk-diet, aperients, and free and frequent dry cupping to the thorax. In this way the tendency of pregnancy to disturb the circulatory equilibrium is counteracted. The physician, directly pregnancy is confirmed, should look out for the first evidences of failure of compensation, such as dyspnea, palpitation, a tendency to bronchitis, and a pulse which, though it may be regular in rhythm and volume, is clearly too rapid. Vinay terms these *gravidocardiac* complications. Jess[2] has studied 29 cases observed in the Kiel medical polyclinic. A slight hypertrophy of the heart-muscle during pregnancy is now very generally admitted. A diseased heart in which the compensatory hypertrophy has been carried to its farthest point is not in a position to overcome the increased resistance to the circulation present in pregnancy, and hence dilatation occurs. The dangers encountered during parturition are due to (1) the pains, (2) the mental excitement, and (3) the emptying of the uterus, with the consequent fall in blood-pressure. This fall in blood-pressure may eventually lead to edema of the lungs and death. Of the 29 cases, 23 were examples of mitral disease (mostly stenosis), 3 of aortic disease, and 3 of combined mitral and aortic disease. From a study of these cases, it is obvious that many women with heart-disease can get over the dangers of childbearing. There was only 1 fatal case in the 29, and the total number of births was 114. Jess analyzes the recorded cases. Here the death-rate is much higher, because only the severest cases would be admitted into the hospitals. [Leyden says that 40% of severe cases of heart-disease in women die as a result of childbearing.] In 3 of Jess's cases similar symptoms developed to those seen in the fatal case, but they passed off. In 1 case symptoms of disturbed compensation occurred in each of 10 pregnancies; but they were really only threatening after the last pregnancy. In 3 cases symptoms appeared only in the fourth pregnancy, and in 2 cases in the sixth pregnancy or later. In 3 cases the patients said that they were better during pregnancy. Childbearing is borne almost as well by those with perfectly compensated heart-disease as by the healthy, as shown by 16 of Jess's cases. His figures also show that abortion is relatively common in those with heart-disease. In severe uncompensated valvular lesions, and especially mitral stenosis, childbearing is harmful. Special instruction is given in Schlager's clinic in the management of labor in cases of heart-disease. The main object in treatment is to deliver as soon as possible with the forceps or by turning. As the fetus is passing through the pelvis a sandbag, weighing from 8 to 10 pounds, is placed on the abdomen in such a manner that it rests on the fundus uteri; the constant pressure of the sandbag ensures the complete contraction of the uterus; no blood-clots remain behind, which saves the patient from subsequent pains. Alcoholic stimulants are given immediately after labor. The patient is kept in bed for 3 or 4 weeks at least. [The favoring of hemorrhage is indicated here in order to relieve the congested circulation and prevent sudden collapse of the heart. We cannot see that the use of the sandbag would be beneficial other than in preventing possible syncope from sudden evacuations of the uterus.] Vacquez and Millett[1] state that for the prevention of accidents from cardiac disease in gravid women, 2 indications are necessarily presented: First, rest in bed; second, an absolute milk-diet. These prescriptions should be adhered to for the period of 5 or 6 months, only a sufficient quantity of exercise being taken each day to maintain the health, and the heart being given a rest during the remainder of the 24 hours. Should there be any evidences of scanty urinary secretion, theobromin may be given as a diuretic, and it may be necessary to give saline purgatives to relieve the bowels or the kidneys. Should the symptoms of cardiac disease manifest themselves in asystole, anasarca, and hepatic and renal congestion, digitalis in fractional doses, employed as an infusion, may be resorted to with advantage. At the same time, it may be necessary to use venesection or active saline purgatives. Fractional doses of Dover's powder may be used with excellent results. If the symptoms become very grave labor may be induced, using chloroform in small quantities and supporting the heart by preparations of digitalis. J. Looff[2] would interrupt pregnancy only when the compensation is disturbed. In other cases, by careful diet, rest, and the use of cardiac tonics in appropriate doses, the patient will pass through pregnancy and labor satisfactorily. In mitral disease the heart is most likely to fail during the second stage; in aortic disease the dangerous period is just after delivery, when the circulatory conditions have been altered. Pinard[3] says that pregnancy cannot provoke any heart-trouble *ab initio*, although many accoucheurs are of the opinion of Larchey, that the left ventricle becomes hypertrophied in pregnant women. Pregnancy cannot in any way influence a healthy endocardium. Considering the influence of the puerperal state on heart-disease, no matter what may be the cardiac affection, if the kidneys are not affected there is compensation, and the pregnancy can reach its termination without giving rise to any accident.

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[1] Lyon méd., Jan. 8, 1899.

[2] Münch. med. Woch., Oct. 4 and 11, 1898.

Pernicious Anemia in Pregnancy.—Bidone[4] notes the differences between the fetal and maternal blood in cases of anemia during pregnancy. He reports 9 cases in full. In 1 the red corpuscles in the fetal blood were 4,266,400, as compared with 928,880 in the maternal blood. In another, there were 5,859,000 red corpuscles in the fetal blood, as compared with 1,581,000 in the maternal. Bidone concludes that extremely anemic women may bear healthy children, and that it is but seldom that the artificial termination of gestation is indicated. [The conclusions of some other observers are by no means in harmony with

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[1] Presse méd., Feb. 2, 1898.

[2] Cincinnati Lancet-Clinic, June 29, 1898.

[3] Med. Press and Circ., No. 3065, p. 103.

[4] Riforma Med., Apr. 12–14, 1898.

Bidone's. It is difficult to draw the line between simple and pernicious anemia; hence, it is easy to understand how different observers have arrived at different conclusions on the subject of pregnancy and anemia.]

La Grippe in Pregnancy and the Puerperium.—Bar and Boullé[1] report their observations upon 50 women suffering from la grippe during pregnancy or the puerperal state. In pregnancy, la grippe affected the nervous system profoundly in 1 case, the gastrointestinal tract in 2 others, while in the majority the respiratory organs were attacked. In 1 of the intestinal cases pyelitis developed, caused by infection with the colon-bacillus. The majority of pregnant women in whom la grippe affects the respiratory organs recover without special difficulty. The sputum of these patients show abundant pneumococci. So far as the influence of la grippe on the continuation of pregnancy is concerned, but a very few cases had metrorrhagia. Labor itself is not especially influenced by la grippe. In the puerperal condition la grippe sometimes occasions severe complications. Mixed infection with streptococci occurs in some cases, and in 1 case of the author's proved fatal. In several instances pulmonary infection with the pneumococcus and genital infection with the streptococcus were present in the same patient. They observed that mixed infections were especially severe; thus, in 1 case of pneumonia in the puerperal state there was phlebitis of the external jugular and cephalic veins; in another case the pulmonary lesions were accompanied by endocarditis.

Glycosuria in Pregnancy.—Kleinwächter[2] publishes 32 cases of glycosuria in women with diseases of the genital tract; and Brocard[3] reports that he has noted 60 cases of glycosuria in 125 pregnant women. The proportion of sugar in any one case varies greatly according to diet, time of day when the urine is passed, and many other conditions. Strictly speaking, it is lactose as well as glucose, and more exceptionally levulose, and even saccharose, that are found in these cases, which are thus more safely called diabetes mellitus than glycosuria. Brocard found that purely "alimentary glycosuria" could be produced in certain women by giving them 2 or 3 drams of grape-sugar daily. This might imply imperfect action of the liver, but glycosuria is seen in women with no other evidence of hepatic mischief. Diabetes of pregnancy seems rather due to a general disturbance of nutrition. Charrin, in a discussion on Brocard's communication, stated that he did not find alimentary glycosuria so frequent in hepatic disease as others have stated. Fatty changes in the parenchyma, common in gestation, did not necessarily mean elimination of sugar. F. W. Taylor[4] says that the combination of pregnancy and true diabetes is very rare, especially as it is probable that diabetes mellitus weakens the sexual functions. In the last 25 years, in 10,000 obstetric cases in the Boston Lying-in Hospital, there have been no cases of diabetes. M. G. Keim[5] found glycosuria in 20 out of 25 puerperal women; he concludes that glycosuria is the rule in the puerperium. Sometimes it precedes the formation of the milk; this *prelactic glycosuria* is a residue of that of labor. The puerperal glycosuria is produced by the secretion of milk. This glycosuria disappears rapidly. In pregnancy glycosuria is exceptional. It does not then depend upon the mammary secretion, but it is a pathologic sign which indicates gestational autointoxication. It is an inconstant sign of the period of eclampsism described by Bar.

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[1] L'Obstét., No. 3, 1898.

[2] Zeit. f. Geb. u. Gynäk., vol. xxxviii., 1898.

[3] Sem. méd., Nov. 30, 1898.

[4] Boston M. and S. Jour., Mar. 2, 1899.

[5] Gaz. hebdom. de Méd. et de Chir., Nov. 24, 1898.

Osteomalacia.—Stieda[1] reports several cases of osteomalacia in which he minutely studied and describes the changes occurring in the muscles. He draws especial attention to the paralyses present, and brings out the interesting fact that osteomalacia may occur without readily apparent lesions of the bones. In regard to treatment, nonpregnant cases do well with the administration of phosphorus and the use of saline baths. If a faithful trial of these measures is without result, removal of the ovaries is indicated. Pregnant cases often do well with the bath-and-phosphorus treatment. When important changes in the pelvis are threatened, pregnancy should be interrupted. Should Cesarean section be done, the uterus, tubes, and ovaries should be removed. Fewson[2] concludes, from his experience in the treatment of osteomalacia, that castration is the surer method of treatment when no complications are present that forbid operation. The phosphorus treatment is often of service, especially in patients too old to bear operation well. Operators must bear in mind the fact that the abdominal walls are often so stretched and altered in these cases that bad union follows abdominal section. This results from the overdistention caused by the spinal deformity, which throws the viscera forward against the muscles of the abdomen, from the cough which is often present, and from the badly nourished condition of these women. The abdominal wall must be closed in layers, and every precaution taken to secure good union.

Retrodisplacement of the Pregnant Uterus.—M. Storer[3] remarks that a slight degree of backward displacement generally causes little trouble. Many of the more extreme displacements also correct themselves as pregnancy advances, generally during the fourth month. In a certain number of cases, however, spontaneous cure does not take place. In 24,000 gynecologic cases, Martin saw 121 incarcerations. Spontaneous cure will be limited by 4 factors: adhesions, the sacral angle, the character of the displacement, and the degree of the displacement. Adhesions will not always soften; it is evident that the more pronounced the sacral angle the harder it will be for the uterus to get past the promontory; while as regards the character of the displacement, it has been argued ingeniously by Chrobak that it makes a great difference whether we are dealing with a version or a flexion. In flexions the cervix lies near the pubes, against which it is pressed, a point of leverage when uterine contractions take place. Furthermore, in flexions the uterus is on the stretch at its upper convex surface, and accordingly the most vigorous contractions will take place there, the effect of which is that the fundus is being continually pulled up out of the sacral hollow, while at the same time contractions lessen the anteroposterior diameter of the flexed uterus, thereby giving it more room to swing up in, none of which events occurs in a version. From this, Chrobak reasons that nonadherent flexions may be left to themselves; while all versions should be corrected at once. [While the correctness of his theory must depend in doubtful cases on the angle of the cervix to the pubes, in versions of the third degree, at all events, in which the cervix may point almost directly upward at the pelvic brim, it can obtain no point of leverage against the pubes, and incarceration must take place. Fortunately, pregnancy is rare in such extreme displacements, as it also tends to be in densely adherent uteri, in which the inflammatory process which causes the adhesions often closes the tubes.] Generally there are no symptoms of consequence until about the tenth week; and they may be still further delayed if the woman has a large pelvis. Until pressure-symptoms come on, the patient is often unaware that any trouble exists. While urinary disturbances are apt to be the first noticed, the more or less severe interference with micturition that generally precedes actual retention often is regarded as merely an exaggeration of the usual discomfort of pregnancy. If retention occur, the abdomen will be found to contain a smooth, fixed tumor, more pyriform than an ovarian tumor, and generally too large for a uterus of the corresponding month of pregnancy. In point of diagnosis, the most difficult thing to exclude is an extrauterine pregnancy, in which, however, urinary retention is rare, though not unknown (Barbour). As regards treatment, the first step consists in emptying the bladder. If this cannot be accomplished by catheterization, the bladder should be emptied by aspiration before attempting to replace the uterus. This is especially true in cases in which there is the slightest reason to suspect impairment of the vitality of the bladder-wall. With more or less advanced gangrene of the bladder, even puncture is not to be lightly undertaken. [In such cases Dührssen advises the induction of abortion by aspiration through the posterior wall of the fundus, without attempting to empty the bladder even by puncture.] Having emptied the bladder, efforts at reposition may be resumed. Most of the manipulative methods are based upon the principle of depressing the cervix, either by traction from below or by shoving it down from above, with the fingers close behind the pubes (Cohnstein), while at the same time the fundus is elevated, causing the uterus to revolve upon itself rather than attempting to force it up bodily. In rebellious cases, other methods than taxis will sometimes succeed. Elastic pressure, in the form of waterbags in the rectum or vagina, has sometimes been of service. Müller[1] strongly recommends the elastic balloon. Some still advise a soft-bulb pessary as a means of exerting pressure. A much more promising use of the pessary is found in the ingenious treatment of Laroyenne (Levrat), which is based upon the theory that the chief factor in maintaining the displacement is suction. The extended fingers are insinuated, palm upward, between the fundus and the sacrum, as high as the promontory, with as little pressure as possible upon the uterus. This enucleates the fundus, and it is claimed that it will now generally fly up of itself; but if it does not, a malleable pessary with a large posterior arm is introduced, so moulded as not to press against the uterus, but merely to fill the space made by the fingers. It is claimed that reduction will then almost always take place in a day or two. Should there be no impaction, but the uterus be held back by adhesions, dividing them with the aid of the eye is a far safer procedure than forcibly rupturing them. Operative interference adds practically nothing to the mother's danger, and if successful is not likely to interrupt pregnancy; in fact, it is not nearly try to push the tumor out of the pelvis, and thereby avoid Cesarean section. He prefers, for the fixed cases, abdominal section to vaginal ovariotomy.

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[1] Monatsch. f. Geb. u. Gynäk., Band 8, Heft 1.

[2] Ibid.

[3] Boston M. and S. Jour., Mar. 9, 1899.

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[1] Centralbl. f. Gynäk., No. 43, 1898.

Fibroid Tumor in Pregnancy.—According to H. C. Coe,[1] pregnancy in fibroid uteri is not so rare as we suppose, both subserous and interstitial myomas being frequently found in pregnant women. Such tumors enlarge rapidly under the influence of the increased uterine blood-supply of pregnancy. This enlargement is not always permanent, but it may cause serious pressure-symptoms. These, with changes in position of the tumor and uterus, and torsion of pedunculated fibroids, may cause hemorrhage, cystic degeneration, and even necrosis. The site of the growth is the most important clinical point to be considered in estimating the probability of these occurrences. As to the effect of fibroids on pregnancy, subserous tumors usually prevent conception or cause abortion, the latter being attended by unusual hemorrhage. Other fibroids may cause impaction of the growing uterus in the pelvis, or may lift it safely above the brim, according to their position. Large interstitial growths often conduce to early detachment of the placenta, and are thus a cause of accidental hemorrhage. The presence of the fibroid renders imperfect both contraction and retraction of the uterus, thus favoring both retention of the placenta and postpartum hemorrhage. F. B. Jessett[2] remarks that the increase in size is more marked in the case of interstitial fibroids, single or multiple, with enormous thickening of the uterine tissue. Some fibroids of the cervix may be enucleated either before or during delivery, and by the vaginal route. Süsserot, out of 147 cases of pregnancy complicated by fibroma, says that the forceps were applied in 20, with the result that 8 mothers and 15 children succumbed. Version was performed in 20 cases, when 12 mothers and 17 children died; in 21 cases the placenta was artificially extruded, and in 13 of these the mother died. Collectively, the mortality of the mothers was 53%; that of the children, 66%. [The following obstetric operations have been suggested in the treatment of pregnancy complicated by this tumor: 1. Artificial miscarriage; 2. Premature artificial delivery; 3. Craniotomy and cranioclasy; 4. Cesarean section. These all have for an end the emptying of the uterus without attacking the fibroid tumor; and they may be termed *palliative* operations. The radical operations have a double end in view; namely, the removal of the fetus either dead or alive, and extirpation of the fibroid. These may be arranged in 2 large classes, according to whether the tumor is or is not removable through the vagina. Thus, vaginal enucleation may be attempted in the case of a pedunculated submucous fibroid, or in a cervical fibroid projecting into the vagina. The abdominal operations include enucleation of the growth (myomectomy); if the fetus is dead or inviable, supravaginal amputation of the uterus or total hysterectomy; if the child is living or viable, Porro-Cesarean section or total hysterectomy, or simple Cesarean section with removal of the ovaries. It should be remembered that enucleation is accompanied by a considerable hemorrhage, especially when dealing with a pregnant uterus, and that the hemorrhage may be the means of interrupting pregnancy. The best time for operating, providing serious symptoms have not occurred, is at or near term. When, on the contrary, the fibroid has produced a series of disorders more or less intense or serious in their nature, ablation of the growth or enucleation should be performed very early. Thus, interference is indicated in peritonitis, whether due to gangrene of the tumor or to torsion of its pedicle, in nephritis, or when there is an intercurrent pulmonary or cardiac lesion. The mortality of the Porro operation today has been estimated by Appelstedt at 20%, and by Kirchheimer at 30%.]

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[1] Med. News, June 12, 1898.

[2] Lancet, Sept. 24, 1898.

PLACENTA PRÆVIA.

According to Sebillotte,[1] the proper treatment of this serious obstetric complication is quite different, according to the period of gestation at which it takes place, as well as the variety of the insertion of the placenta and the conditions presented by both the mother and child. If the hemorrhage occur before the sixth month of gestation, it is difficult, if not impossible, to make a diagnosis of its real cause, and the treatment in no way differs from that of a threatened miscarriage; namely, absolute rest in bed, hemostasis, and asepsis by vaginal irrigation at a temperature of 48° C., opiates, and cold, acidulated potions. After the seventh month, everything should be in readiness in case an urgent interference should be indicated, and for this vaginal antisepsis must be assured, and the patient's general condition kept up by stimulation and tonic treatment, and each drop of blood lost is to be replaced by a drop of artificial serum. When hemorrhage is serious, both on account of its frequency and amount, to temporize is folly. The patient's life is in danger as long as she is not delivered of her child. Action is demanded in a triple way; namely, to arrest the flow of blood, to empty the uterus, and to combat the anemia and thus improve the general condition. There are a number of methods now in vogue; namely, accouchement forcé, rapid delivery, rupture of the membranes, bipolar version, complete detachment of the placenta, and vaginal tamponade. No matter which of these methods be used, extraction of the fetus should not be delayed as soon as dilatation is complete, either by version, with the forceps, or, if the fetus be dead, by basiotripsy. After delivery the placenta must be removed with care; and if hemorrhage continues, injections of ergotin, hot intrauterine irrigations, and, if necessary, a tamponade are to be resorted to. The general treatment for slight hemorrhage is rest in bed, hot vaginal irrigations, cold, acidulated drinks, and a tonic treatment. For more abundant loss of blood, the horizontal position is not enough, and the blood should be driven to the head and thorax by bandaging the limbs with linen bandages or Esmarch's band, the head should be lowered, and the pelvis and lower limbs elevated. Syncope is treated with heat and alcoholic frictions. Hypodermic injections of ether and caffein are excellent stimulators. Most important of all are injections of artificial serum, preferably given subcutaneously. The quantity to be injected each time will vary according to the patient's condition; but usually 200 cc. are enough. According to Pozzi, 1 injection should not exceed 1000 cc., and not more than 3000 cc. should be injected in 24 hours. Sebillotte recommends a serum composed of 7 gm. of sodium chlorid to 1000 cc. of water. E. A. Ayres[2] does not regard these patients as out of danger for at least 24 hours after delivery. He prefers the Barnes bag to the hand for dilatation, because of the perfect control of hemorrhage during the period of dilatation. S. Marx, however, thinks that as the Barnes bag produces dilatation it follows the lower uterine zone, displaces the presenting part, and leads to malpositions. Efficient contraction of the lower uterine zone can be obtained by careful and thorough packing, not only of the uterus, but also of the vagina. E. Hastings Tweedy[1] emphasizes the value of vaginal plugging in cases in which the membranes are intact, as a properly applied tampon prevents external bleeding, excites labor-pains, and induces rapid dilatation of the os. He accomplishes this, after thorough vaginal asepsis and emptying of the bladder, by firmly packing numerous pledgets of cotton-wool, wrung out of some antiseptic solution, into the fornices around the cervix and into the os, and then tightly fills the vagina, the whole being retained by a diaper and tight abdominal binder. Kleinhaus[2] recommends the intrauterine use of the colpeurynter to secure rapid delivery. He reports a series of 7 cases so treated. Farrar[3] and C. Fenwick[4] secure rapid dilatation of the cervix by means of pledgets of cotton, saturated with a 10% aqueous solution of cocain, inserted into the cervix and externally. These may be left *in situ* for 4 or 5 minutes, when, they claim, the os will be found perfectly dilatable. Probably the most astonishing and radical procedure recommended in obstetrics during the past year was the last suggestion of the late Lawson Tait.[5] He considered placenta prævia a much more fatal condition than is generally supposed, and believed that more than half of the cases die. He therefore advocated removal of the uterus as giving the best chance of saving both mother and child. [Such a radical departure as this can scarcely be supported by the general obstetrician. The other measures at hand are very efficient if properly applied, and the removal of the uterus would seem to be unnecessary mutilation for a curable condition.]

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[1] Ann. of Gyn. and Pediat., Nov. 18, 1898.

[2] Med. Rec., Feb. 11, 1899.

PREMATURE SEPARATION OF THE PLACENTA.

C. G. Cumston[6] reports 2 cases of premature separation of the placenta, and discusses the literature of the subject. Lesner has said the accident is due to the fact that the adhesions binding the organ to the uterus cannot resist the contractions of the uterine muscle during labor. Hegar believes that a fatty degeneration of the decidua is the cause; while Dohrn considers that this complication is produced by the elimination of necrotic tissue from embryonic cell-formation similar to that produced by granulating surfaces. As the primary causes, uterine contractions or traumatism must be admitted; these give rise to hemorrhage at the site of the placental attachment to the uterine cavity, thus tearing the organ away as the hemorrhage overcomes intrauterine pressure. The etiologic factors may be divided into 2 classes; namely, the *predisposing* and the *direct* causes. As predisposing causes we have: 1. A pathologic condition of the blood and vessels directly due to the process of gestation. 2. Nephritis, especially the parenchymatous type, producing a high arterial pressure in the uterine vessels, due to degenerative changes in their walls, bringing about the so-called pseudomenstruation, which, if severe, may lead to a premature separation of the placenta. 3. Hyperemia of the uterus, whether due to arterial hyperemia or venous stasis. The former may be caused by a preexisting endometritis, metritis, or an inflammatory process in the adnexa, the use of strong purgatives or drastics, overindulgence in alcoholic drinks, or hot bathing; venous stasis is caused by compression of the vena cava inferior, from a very large uterus or from neoplasms in other abdominal viscera, tight lacing, or excessive walking or other exercise. As direct causes we have traumatism of all kinds: severe shaking of the body; vomiting, coughing, sneezing; bodily exertion; lifting heavy weights; slipping, and dancing. Premature separation may also be produced by an hydramnios or an exaggerated development of the uterus. During labor it may follow sudden exit of the liquor amnii. Scanzoni attributes it to tetanus uteri; and Schröder, to a short funis. Hemorrhage consequent upon premature separation of the placenta is almost always preceded by a general malaise, dizziness, vague pains in the abdomen, and diarrhea. Usually the blood appears suddenly. If concealed hemorrhage occur, the symptoms are severe abdominal pain, accompanied by a bearing-down sensation extending to the back and iliac fossæ; severe vomiting may also occur, and all the symptoms of marked anemia rapidly develop. Increase in the size of the uterus, due to the presence of blood, is an important symptom. The membranes are distended to their fullest extent, and can be felt projecting from the cervix. All obstetricians are of the opinion that a rapid delivery, by means of powerful uterine contractions, is the most important therapeutic measure; and for this purpose the subcutaneous use of strychnin, in the dose of 2 or even 3 mg., may be recommended. The weakened condition of the patient should be attended to by treating the anemia by artificial serum injections. Cumston employs the following serum: Sodium chlorid, 1 gm.; sodium glycerophosphate and sodium sulphate, each 2 gm.; distilled water, 300 cc. An injection of 300 cc. may be repeated several times, if necessary. As a rule, not more than 2 will be needed. The os should be dilated manually and the membranes ruptured. The uterus will then contract well, and the hemorrhage may thus be controlled. Care should be taken to puncture only the membranes with a very fine instrument, so that the amniotic fluid will drain away slowly; and if uterine contractions do not appear, strychnin should be given. If dilatation is complete, the forceps may be applied or version performed. It is good practice, he believes, to pack the uterine cavity and vagina with gauze for 48 hours following delivery in these cases, to secure uterine stimulation. After the packing is removed, a pill of ergotin and hydrastin, given 2 or 3 times daily for 1 week, will be found of service.

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[1] Brit. Med. Jour., June 4, 1898.

[2] Monatsch. f. Geb. u. Gynäk., Band 7, Heft 2.

[3] Med. Standard, Feb., 1899.

[4] N. Y. Lancet, Apr., 1899.

[5] Lancet, Feb. 27, 1899.

[6] Ann. of Gyn. and Pediat., Mar., 1899.

ABORTION.

Etiology.—A very timely editorial[1] calls attention to the disquieting frequency of *criminal abortion* in this country and in England. Not only is this true of pregnancy the result of illicit relations, but it is also alarmingly true of respectable married women, who are undesirous of further offspring. The *exposé* recently made in England shows that, outside of those who use or submit to operative interference for the procuring of abortion, there is a large and lucrative trade effected by nostrum-dealers in abortifacients. While these, no doubt, are often useless for the purpose for which they are sold, they are none the less indicative of the attitude of mind on the subject of abortion among the vast clientele of women who cause the business to pay. The first and primal error leading to conditions that ultimately suggest the crime of abortion, the writer thinks, lies in a total misconception of the real nature of the sexual act and its relation to "love." Two views only are commonly admitted. In the public mind, it is with the vast majority a means of purely sense-gratification, which is legitimized by marriage. The other view is that of the social economists, who regard the performance of the sexual act as mainly and primarily for the procreation of the race. The writer protests against a view of the sexual relations which would reduce the glorified companionship of matrimony to the principles of a stud-farm. The idea of lust, as applied to normal sexual relations between married people, may possibly strike many as strange; but the writer believes that in the want of general recognition of this fact lies the secret of the evil. A more thorough understanding and appreciative practice of actual purity among the married, together with the proper and progressive enlightenment of their children, would change the entire public estimate of marriage; and, by removing social and other impediments to the lawful expression of the imperious emotion of love, would at least relegate criminal abortion to the class of the essentially depraved.

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[1] N. Y. Med. Jour., Feb. 25, 1899.

Among the constitutional causes of abortion, L. J. Utter[1] remarks that all conditions that lead to depression of a woman's health and strength, such as anemia, lack of proper nourishment, and especially those resulting from a syphilitic taint, have a tendency to weaken and destroy the natural vitality which should be the right of the embryo. Fevers of the zymotic variety exert an unfavorable influence on the retention of the ovum; and acute inflammation of any of the internal organs—as pneumonia—frequently induce abortion. Scrofula, tuberculosis, too frequent pregnancy, inflammation and adhesions of the placenta to the uterine wall are other disturbing influences. Nephritis in the mother will exercise an unfavorable influence upon the life of the fetus. Cohen estimates fetal mortality from nephritis at 7%; then comes *placental endometritis;* that is, inflammation of the inner coats of the uterus, with necrosis of the connective tissue of the placenta, resulting in diminishing the surface available for aëration. G. F. Crooke[2] calls attention to the danger attendant upon the use of diachylon pills as abortifacients. Fatal cases of lead-poisoning have followed their administration for this purpose.

F. A. Stahl[3] defines normal-course abortions as those in which dilatation occurs without pathologic manifestations; expulsion occurs *en masse*, and retention with dilatation of the os continues no longer than 12 hours. Abnormal-course abortions are those in which dilatation progresses so slowly as to cause serious exhaustion, both physical and mental; in which, with a dilated os, retention continues longer than 12 hours; and in which there is danger, as from infection, serious hemorrhage, chill, or sepsis. W. C. Stevens[4] records an interesting case of habitual abortion covering a period of 25 years, and reviews the literature of the subject. The etiology of habitual abortion is very obscure. Some authors deny its existence, and hold that it is due to some pathologic condition acting in successive pregnancies; while others, as Playfair, believe it may exist independently of any organic lesion. T. King places habit among the causes of abortion. Etheridge says systemic recurrent, or so-called "habit," abortion is probably due not so much to a maternal constitutional predisposition, the result of habit, as was once believed, as to a continuance of the original cause. Dorland says it is known that one abortion predisposes to others in subsequent pregnancies; and thus the deplorable condition of habitual abortion may be inaugurated. Playfair remarks that in many women a recurrence of the accident induces a habit of abortion, or rather a peculiar irritable condition of the uterus which renders the continuance of pregnancy a matter of difficulty. K. Schrœder says there can be no doubt that, independently of demonstrable pathologic conditions of the maternal organism, some individuals are of such an irritable constitution that they have a peculiar disposition to abort. As to the treatment of this condition, there should be no radical change in the habits of life, except in unusual cases. Tightly-fitting garments must be forbidden, and the skirts should be supported from the shoulders. An abdominal supporter should be advised, to prevent the uterus falling too far forward. Systematic exercise in the open air is beneficial, and a daily sponge-bath taken, followed by gentle friction. The bowels should be regulated either by a carefully selected diet or a gentle laxative. During the menstrual epoch the pregnant woman should remain in bed for 2 or 3 days. The medicinal treatment includes the use of tonics and remedies that act upon the uterus. These include ferric phosphate, quinin and strychnin, lime and sodium phosphate, dilute phosphoric acid, asafetida, Jamaica dogwood, and Viburnum prunifolium.

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[1] Physician and Surgeon, Sept., 1898.

[2] Clinical Reporter, Mar., 1899.

[3] Jour. Am. Med. Assoc., vol. xxx., No. 15.

[4] Physician and Surgeon, Sept., 1898.

Treatment.—Harnsberger[1] believes that interrupted pregnancy is not, as a rule, due to single causes, but is the result of a combination of several, the underlying condition being a systemic or nervous depreciation brought on by the early operation of overstrain or other sinister influences incident to modern times and modern modes of living. By directing proper attention to the predisposing first cause, the tendency to abortion and premature labors can be notably limited. With women in whom the existence of pregnancy is uncertain, but strongly suggestive, during the first 2 months, it is desirable that the uterus should be assisted in retaining the products of conception, if present. We frequently see women who are usually regular pass over a catamenial period. Their suspicions may be aroused; but at the appearance very soon thereafter of the menstrual flux, though it should be accompanied by an increased discharge and more pain, it is looked upon as only a delayed period, they being unaware that one of the clots which has been expelled contained an immature ovum. In such instances, as well as in habitual abortion, Harnsberger advocates the exhibition of 5 to 8 gr. of acetanilid, repeated in 1, 2, or 4 hours, as necessary. In cases of ovarian irritation where there seems to be a tendency to separation of the ovum at what would have been a menstrual period, the more or less regular use of Viburnum prunifolium and potassium bromid, with acetanilid at the time of each periodic disturbance, is recommended. In emergency cases, acetanilid, 10 to 15 gr., repeated at short intervals, should be given. For those who are not accustomed to this drug, it would be well to begin with 5 to 7½ gr.; but in every instance individual susceptibility should be considered. Harnsberger has employed acetanilid in the manner indicated for several years, and has never seen alarming or even objectionable symptoms arise —such as nausea, vomiting, collapse, or cardiac depression—or cumulative action follow its use. It does infrequently give rise to a rather profuse perspiration; but this in no way interferes with the successful progress of the case. Contrary to the observations of Dulácska and others, Harnsberger finds that the action of the drug on the vascular system does not tend to induce dangerous hemorrhage.

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[1] Jour. Am. Med. Assoc., Oct. 22, 1898.

Chenevière[1] summarizes the history of the treatment of abortion as follows: Thirty years ago, it was all expectant; later, with the advent of antiseptics, the use of the curet was advocated for every case. Under the auspices of Winckel, a reaction set in about 10 years ago, the expectant treatment being again advocated. At the present time, the question whether the routine treatment should be expectant or operative—curet or finger—is hotly debated, though all authorities are agreed that (1) the uterus must be evacuated somehow before the patient can be considered out of danger; and (2) with symptoms of danger active treatment must be begun. They differ, however, as to the method to be used. Some content themselves with plugging the uterus and vagina, while others would operate. The operators, again, form 2 schools: one would use the curet in spite of the cervix being but slightly dilated; the other requires sufficient dilatation for the introduction of the finger and exploration of the cavity. Rapid versus gradual dilatation is another disputed point. Chenevière believes that immediate evacuation of the uterus, generally by means of the curet, is the method of choice in all cases. It is impossible to foretell how and when any case of inevitable or incomplete abortion will terminate; and precious time may be lost by waiting. As a rule, the cervix is sufficiently dilated for the curet to be used at once; if not, a few Hegar's dilators can be passed with very little pain, and therefore without an anesthetic. The fragments of the ovum may be removed by the finger or the curet. The curet is certainly preferable in the first weeks of pregnancy; and is always easier to sterilize than the finger. It has been urged in favor of the finger that digital exploration gives more exact information of the actual state of things than the curet. This is not the case, except in the later months, when it may be difficult to decide whether the instrument is in contact with uterine or placental tissue. The finger is much more painful than the curet, and an anesthetic is often required, necessitating, as it does, pressure on the abdominal walls with one hand, and on the perineum with the clenched fingers of the other. If the finger has been used, it is always well to finish up with the curet, which is a great prophylactic against hemorrhagic endometritis; and, finally, a uterine douche should be given in all cases. For late hemorrhages, the curet is the best hemostatic. In all cases he advocates the early use of the curet, because (1) it is simple and rapid, and (2) it does not, as a rule, require an assistant. From his own experience of 500 cases he is convinced that its dangers (perforation of the uterus, etc.) have been much exaggerated, and that other methods that require either dilatation of the cervix or packing the uterine cavity are by no means free from danger. A curet 6 to 10 mm. in diameter will enter the cervix without difficulty in the case of an abortion of a few weeks; and later, one 13 to 15 mm. wide will be found most useful. He prefers the instrument a little dulled by use and antiseptics. P. Budin[1] records 3 cases of incomplete abortion treated by digital curettage and abdominovaginal expression of the uterus. He forbids the use of the curet under such circumstances, and is of the opinion that all forms of abortion-forceps are dangerous. In order to remove the retained products of conception with safety, the following procedure is recommended: Chloroform is administered, and, with all antiseptic precautions the cervical canal is dilated with, first, the index-finger, and then the middle finger. Occasionally, it may be necessary to employ the Hegar dilators. The uterus is fixed with the hand acting through the abdominal wall. Then with 2 fingers or 1, according to the age of the pregnancy, the interior of the uterus is thoroughly scraped, all portions of placenta being separated from the walls. To evacuate the uterus, it is sometimes sufficient to make traction on the placental fragments with the fingers or with one finger hooked. Usually, however, it is necessary to employ uterine expression. This is done by placing 2 fingers in the posterior vaginal fornix and pressing them forward, while with the other hand placed on the hypogastrium, pressure is made on the anterior wall and fundus uteri. In this way the organ is compressed between the 2 hands, and the contents are forced into the vagina. The uterine cavity is then washed out, and a mixture of glycerin and creasote applied.

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[1] Sem. méd., Jan. 4, 1899.

EXTRAUTERINE PREGNANCY.

An unusually large number of interesting cases have been recorded during the year, and an active investigation into the etiology and pathology has been carried on. Among the notable cases recorded are the following: Pollosson,[2] a tubal pregnancy, with the sac lying between the uterus and the bladder; Elbogen,[3] a right tubal pregnancy, complicated by appendicitis; the gestation-sac and the appendix were removed, and the patient made an uneventful recovery; C. J. Cullingworth,[4] an early tubouterine gestation, complicated by fibromyoma of the uterus; H. C. Dalton,[5] an abdominal pregnancy at full term, the placenta being attached to the bottom of the pelvis on the left side of the uterus: it was torn from its attachment and the sac packed with iodoform gauze; the child lived 4 hours, and the woman made a good recovery; R. M. Taft,[6] an interstitial pregnancy, terminating by rupture into the uterus; Bastian,[7] an extrauterine gestation at term, the fetus having been dead for 4 years; the case was successfully treated by marsupialization and drainage; the gestation-sac was formed by the left tube and broad ligament, the pregnancy having continued as the intraligamentous form; Swift,[8] an abdominal pregnancy at term, the placenta being attached to the upper edge of the broad ligament; the patient made a good recovery; Holst,[1] an abdominal pregnancy in a primipara, complicated by puerperal eclampsia; 5 months after the eclampsia, fetal bones escaped through fistulas in the vagina, bowels, and near the umbilicus; Labey,[2] a fatal case of right tubal pregnancy, the fetal cyst remaining intact, the tube being ruptured during a gynecologic examination; Neugebauer,[3] an abdominal pregnancy at term, the mother recovering, and the fetus living for 9 hours; the placenta separated spontaneously from the attachment to the bladder and uterovesical pouch; Gangitano,[4] a tubal pregnancy, removed by abdominal section at term; Ferguson,[5] a right tubal pregnancy, complicated by a floating kidney and 114 gallstones in the gallbladder; the patient recovered; White,[6] a left tubal pregnancy, unruptured, the gestation-sac containing 2 fetuses; T. A. Helme,[7] an abdominal pregnancy of 12 years' duration, a natural birth occurring when the ectopic pregnancy was 2 years old; the fetal bones and sac were removed through the posterior vaginal fornix; Malinowski,[8] a right tubal pregnancy, in which the uterine orifice of the tube was dilated and delivery occurred *per vias naturales;* the placenta lay in the distended tube; A. Donald,[9] an intraligamentous pregnancy at the seventh month, the fetus being extracted by vaginal incision; J. E. Cowles,[10] a right tubal pregnancy, rupturing in the fourth week of gestation; J. Oliver,[11] an abdominal pregnancy at 5 months, the placenta being implanted on the interior of the abdominal wall; J. M. Ward,[12] an abdominal pregnancy, with regular menstruation throughout; the left tube had been ruptured, and the placenta was attached to the parietal peritoneum and to the anterior surface of the omentum; Doléres,[13] an abdominal pregnancy at term, the fetus and the placenta lying in 2 distinct sacs; R. Matas,[14] a left tubal pregnancy, complicated by an acute circumscribed suppurative hepatitis, treated by transpleural hepatotomy, with recovery; Pinard,[15] an abdominal pregnancy at term, with extraction of a living child; both mother and child survived; F. Page,[16] an abdominal pregnancy at term, the placenta being left, and coming away piecemeal 1 month after operation; F. L. Benham,[17] a fatal left tubal pregnancy, rupture occurring between the tenth and the twentieth day of gestation; F. A. Stahl,[18] an early right tubal pregnancy, the sac lying in the fimbriated extremity; he also presented a specimen of early intrauterine pregnancy.

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[1] Progrès méd., Sept. 17, 1898.
[2] Indépendance méd., Mar. 7, 1899.
[3] Prag. med. Woch., Mar. 2, 1899.
[4] Brit. Med. Jour., Oct. 15, 1898.
[5] Med. Rev., Nov. 5, 1898.
[6] N. Y. Med. Jour., Sept. 3, 1898.
[7] Brit. Med. Jour., Dec. 10, 1898.
[8] Boston M. and S. Jour., May 12, 1898.

Cases of coincident uterine and ectopic pregnancy are reported by Kiriac,[19] C. J. Miller,[20] H. E. Jones,[21] and H. P. Mathewson.[22] Mathewson's case showed 2 living fetuses at term. B. B. Brown, in 1881, reported 24 instances of combined intrauterine and extrauterine pregnancy, 10 of which advanced to term; 4 of these were assisted surgically, 3 of the mothers perishing and 2 of the extrauterine children surviving; 3 of the 6 at term who were not subjected to surgical interference recovered, and 3 died. The extrauterine children perished in the 6 cases left to nature, and sloughed out at later periods through the vagina or abdominal walls. Royster found that, previous to 1890, 37 cases of this condition had been noted in the *Catalogue of the Library of the Surgeon-General's Office.* A review of the *Index Medicus*, from 1890 to the present time, shows 8 instances reported in periodicals. H. A. Kelly alludes to 18 cases collected by Gutzwiller; 10 of the mothers died, and 4 were saved by celiotomy.

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[1] Centralbl. f. Gynäk., No. 18, 1898.
[2] Bull. de la Soc. anat., Jan., 1898.
[3] Centralbl. f. Gynäk., No. 30, 1898.
[4] Riforma Med., Dec. 13, 14, 1898.
[5] Chicago Med. Recorder, Dec., 1898.
[6] Boston M. and S. Jour., Oct. 20, 1898.
[7] Lancet, Nov. 26, 1898.
[8] Meditsinskoje Obosrenje, Band 49, Heft 2.
[9] Lancet, Jan. 14, 1899.
[10] Jour. Am. Med. Assoc., Sept. 17, 1898.
[11] Brit. Med. Jour., Nov. 26, 1898.
[12] Phila. Med. Jour., July 2, 1898.
[13] Jour de Méd. de Paris, Aug. 28, 1898.
[14] Jour. Am. Med. Assoc., Apr. 15, 1899.
[15] Bull. de l'Acad. de Méd., Mar. 4, 1899.
[16] Lancet, Oct. 29, 1898.
[17] Ibid., Mar. 25, 1899.
[18] Am. Gyn. and Obst. Jour., Nov., 1898.
[19] Jour. Am. Med. Assoc., Dec. 3, 1898.
[20] New Orl. M. and S. Jour., Oct., 1898.
[21] Va. Med. Semi-Monthly, Feb. 11, 1898.
[22] Pacific Med. Jour., Sept., 1898.

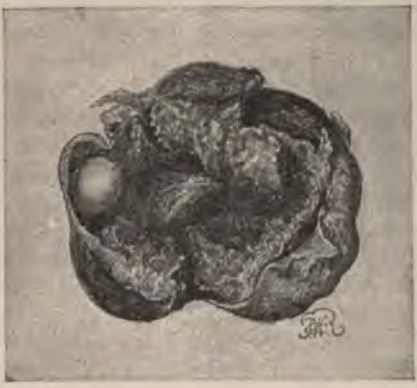

FIG. 49.—Early extrauterine ovum. Ampullary form of tubal pregnancy. Clot broken open. Notice seeming absence of villi. Diameter of ovule in specimen 7 mm. (Am. Gyn. and Obst. Jour., Nov., 1898).

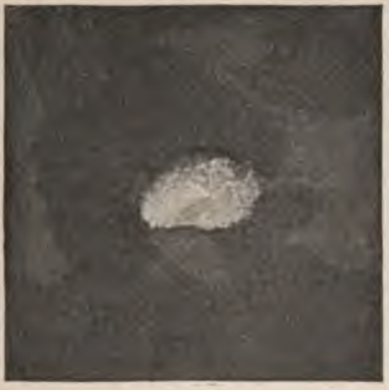

FIG. 50.—Early intrauterine ovum. Well-marked villi. Original size: length, 16 mm.; breadth, 11 mm.; thickness, 8 mm. (Am. Gyn. and Obst. Jour., Nov., 1898).

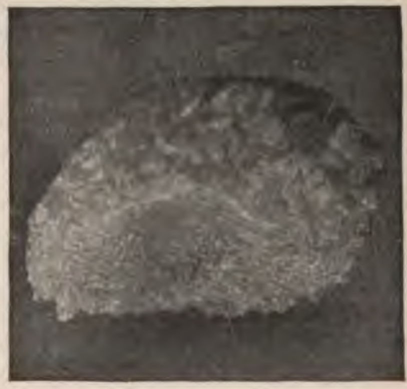

FIG. 51.—Specimen shown in Fig. 50, enlarged (Am. Gyn. and Obst. Jour., Nov., 1898).

Cases of **repeated extrauterine pregnancy** are recorded as follows: Zangemeister,[1] 3 cases; 1 in a primipara, whose first pregnancy was in the left tube, and the second, 4 months later, in the right tube; the second was a tuberculous woman, who in her eighth pregnancy conceived in one tube, and 1 year later conceived in the other tube; the third patient conceived in the opposite tubes in the fourth and fifth pregnancies, 7 months apart; Ross[1] has, for the second time, had the unusual experience of operating twice on the same patient for the removal of ectopic-gestation sacs; in the recent case the first pregnancy was right tubal, ending in a tubal abortion; the second pregnancy was left tubal; and Haig Ferguson,[2] a case in which 2 gestation-sacs (1 a lithopedion) were successfully removed from either side at operation. In surveying the published cases, he found that in about 5% of all extrauterine cases both tubes had been involved at the same time or at intervals more or less prolonged. The shortest interval was 6 weeks, and the longest was 5 years. Zangemeister[3] has collected 31 cases of recurring ectopic pregnancy in addition to his own. As is well known, pregnancy may exist in both tubes at the same time. Rarely, 2 fruit-sacs have been found in the same tube. In 11 out of 18 cases, the first pregnancy was in the left tube. In 7 cases in which the opposite tube was examined, it was healthy in 2, thickened in 2, and in 5 the ovaries were diseased.

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[1] Zeit. f. Geb. u. Gynäk., Band 38, Heft 3.

Etiology of Ectopic Pregnancy.—A most excellent study of this subject is made by Strassman.[4] He remarks that extrauterine pregnancy means the attachment and development of the fructified ovum in the tube or at the tubouterine junction. Abdominal pregnancy is secondary to rupture of the tube and secondary extensions of placental formation. The older view, that impregnation occurred in the uterus, arose from the idea that the ciliated epithelia promoted the passage of the spermatozoa into the uterus, and the same epithelia of the tube, by their motion, promoted the passage of the ovum, but hindered the spermatozoa from entering the tube. From freshly excised organs, it is now known that the motion of the uterine cilia is outward; and, therefore, if the spermatozoa can pass this tract, they can as well penetrate the tube to the ovary without supposing a destruction of the epithelia of this tract. L. Mandl[5] has confirmed Hofmeier's work, by examining uteri immediately after their extirpation by Schauta. Small pieces were clipped from the mucosa and placed in warm saline solution under the microscope. Cilia were seen in active movement, causing a current from the fundus downward toward the cervix, in which blood-corpuscles were hurried along. In the labyrinths of the tubal mucous membrane, designated by Henle as receptaculi seminis, the spermatozoa may remain a long time, as verified by experiments on animals. We are indebted to Hensen for the conclusion that man in nowise differs from animals in conception, and ovum and spermatozoa meet at the fimbriated extremity of the tube, and that every pregnancy begins as extrauterine. The question no longer is, How does conception occur in the tube? but, Why does the impregnated ovum not reach the uterus, and how can it attach itself to the tube and develop there? We do not know how long it requires the ovum to reach the uterus, probably some days. In dogs, guineapigs, and rabbits Hensen and Bischoff have shown that the ovum passes several days in the tubes; and Grusdew has confirmed this. Certain it is, that at the end of the second week the human ovum is not yet free, but remains nested in the uterine endometrium. The primitive furrows and blastodermic layers probably develop during the passage through the tube. Passage through the canal is prevented when the propulsive force is wanting or too feeble; when the canal is too narrow from external or internal causes; when the ovum is too large or of unusual form. The ovum is propelled by the cilia, and possibly by peristalsis, of which little is known. Naturally, catarrhs and inflammations affecting the cilia and tubal function hinder the passage of ova. Inflammations and adhesions from without produce stricture and obstruction. In this connection, parametritis is the most important predisposing factor, by causing distortions and stricture of the tube. Comparatively few nulliparas develop extrauterine pregnancy, since its chief cause is found usually after delivery or abortion. Excessive development of the ovum occurs when the tube has been lengthened by tumors of the ovary or parovarium. Primary abnormality in the ovum has been often observed in extrauterine pregnancy; as, for example, hydramnios, encephalocele, twins, and thoracopagus. As to the consistency of the ovum, which is most difficult to analyze, it is supposed that disease of the Graafian follicles so alters the membrana granulosa that the ovum is rendered more adhesive to the tubal wall. Grusdew noticed that ova richly enclosed by cells passed more slowly through the tube. Hemorrhage from a ruptured follicle is more readily understood as a source of obstruction by clotting. The ovum attaches and nourishes itself by the proliferation and metamorphosis of the tubal mucous membrane, from which chorionic villi are elaborated. *A priori*, it is to be inferred that the ovum does not find its natural culture-soil outside the uterus, and probably most impregnated ova to which uterine access is difficult perish before or soon after attachment in the tube, without causing any symptoms. Such cases are frequent. The theory that tubal pregnancy is an atavistic phenomenon is suggested by the larger functions of these organs in animals; but the decidual cells which are derived from the uterine connective tissue are also found in accumulated masses during pregnancy in the ovary and beneath the serosa of the peritoneum in Douglas's pouch; whence the conclusion that the decidua is a reaction due to pregnancy, and may occur in the tube or in the uterus. How these ciliated mucous epithelia contribute to building up the chorionic villi is not clear; but probably some influence exercised by the blastodermic layer of the ovum causes the proliferation, metamorphosis, and change of function. The same process occurs in the tube as in the uterus. That every impregnated ovum does not attach itself to the tube is due to its envelope of cells, the membrana granulosa and the zona pellucida; and it is only after entering the uterus that the chorion develops. Ovarian and abdominal pregnancies are doubtful, because the blastodermic epithelia of the ovary and the flat epithelia of the peritoneum are so far removed in type from tubal and uterine epithelia, that the attachment of the ovum by proliferation and metamorphosis is scarcely possible.

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[1] Am. Jour. Obst., Dec., 1898.

[2] Lancet, Dec. 31, 1898.

[3] Loc. cit.

[4] Berlin. klin. Woch., Sept. 6, 1897.

[5] Centralbl. f. Gynäk., No. 13, 1898.

Rare forms of ectopic pregnancy are those that develop in accessory tubes or in diverticulums of the tube. Of each of these varieties, Henrotin and Herzog[1] have recently described an instance. At the fimbriated end of the Fallopian tube may be found certain accessory organs, which are somewhat difficult to describe. Some of them, however, are known under the name of accessory tubes. They consist of a canal, with an open free end surrounded by fringe, the other end sometimes opening into the

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[1] Rev. de Gyn., July-Aug., 1898.

Fallopian tube proper. These structures are congenital malformations resulting from anomalies of the duct of Müller. Certain authors, however, believe that these structures and orifices may result from inflammatory processes, followed by proliferation of the wall of the oviduct, with hernia of the mucosa. The histologic study of such accessory organs in serial sections has shown conclusively that they depend upon an early embryonal anomaly. Kossmann believes that these accessory organs result from infundibuliform invaginations of the serous endothelium, and that sometimes such prolongations may connect with the salpinx. Diverticulums of the walls of the Fallopian tube have long been regarded as playing some role in the etiology of ectopic pregnancy; but the number of illustrative cases is so far very small. Williams describes these diverticulums as developing in the interior of the tube and as extending up to the serous covering; they may be lined with a single layer of cylindric cells with cilia, presenting, therefore, all the characteristics of the mucous membrane of the Fallopian tube proper. These diverticulums cannot be confounded with accessory tubes, because they do not open upon the exterior, and cannot be readily recognized from the external surface of the tube. The only example of ectopic pregnancy in a congenital diverticulum of this kind is described by Landois and Rheinstein. Henrotin and Herzog believe that diverticulums of the tube of this kind are due to anomalies of the duct of Müller, which has given origin to a secondary branch. This division may result in a double opening into the uterine cavity. Dührssen[1] considers tubal disease, particularly gonorrheal infection, as the most frequent cause of extrauterine gestation. Other causes are tubal polyps and puerperal atrophy of the tubes. Freund has shown that the tube may become twisted near the uterine end. He suggests that this may be due to the infantile state of the tube.

According to J. W. Taylor,[2] all forms of extrauterine pregnancy are primarily of tubal origin; and all varieties are the results of secondary invasions beyond the confines of the tubes into other tissues or organs. The secondary varieties are classed as: 1. *Tuboabdominal* (*abdominal* or *ventral*) *pregnancy*, in which there is secondary invasion of the abdomen; 2. *Tuboligamentary* (*mesometric* or *broad ligament*) *pregnancy*, in which there is secondary invasion of the broad ligament and subperitoneal tissues; and 3. *Tubouterine* or *interstitial pregnancy*, in which there is a secondary invasion of the uterus. Beckman[3] makes 2 varieties of interstitial pregnancy: 1. *Tubouterine pregnancy*, in which communication persists between the uterine cavity and the cavity of the tube in which the fruit-sac is contained. Here the gestation-sac may be exuded spontaneously into the uterine cavity. 2. *Interstitial pregnancy proper*, in which the ectopic sac is separated from the cavity of the uterus by a muscular partition. In the latter form, the termination of the pregnancy is usually by intraperitoneal rupture, abortion being generally impossible. He states that interstitial pregnancy occurs more frequently on the left than on the right side, the proportion being as 17 to 7. He remarks that in true interstitial pregnancy rupture always occurs between the third and fifth months. Usually, it takes place into the peritoneum, and, without interference, death follows rapidly from hemorrhage; rarely, the muscular septum gives away, and the fruit-sac is expelled through the uterus.

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[1] Arch. f. Gynäk., Band 54, Heft 2.

[2] New Orl. M. and S. Jour., Jan., 1899.

[3] Zeit. f. Geb. u. Gynäk., Band 38, Heft 3.

Symptoms and Diagnosis of Extrauterine Pregnancy.—A. L. Wright[1] remarks that the diagnosis of tubal pregnancy rests largely upon the following clinical manifestations: The early history of pregnancy; pain in one side, severe at times; irregularity of the menstrual flow; and, prior to rupture, a tumor to one side of the uterus. After rupture, in addition to the above, the patient presents a history of some profound disturbance, and of shock, due to the loss of a large quantity of blood. J. W. Taylor,[2] from a study of 37 cases, gives the elements upon which an early correct diagnosis is based, as follows: 1. A patient within the childbearing limits of age, and one in whom pregnancy is possible. 2. She has recently been in good health. 3. It is more likely, than not, that several years have passed since her last pregnancy. 4. There is a history of some amenorrhea, accompanied or followed by 5. Irregular uterine hemorrhage, occasionally profuse and red, but generally dark in color, moderate in amount, and persistent in its course. 6. With this there may be the history of the passage of some membrane, either in 1 pouch or bag as a complete decidua, or in 2 pieces or in shreds. 7. On examination, pulsating vessels may be felt in the vaginal vault on 1 side of the uterus. 8. On this side, also, and closely investing the back of the uterus, there is nearly always a tubal tumor. 9. The tumor enlarges markedly and suddenly by recurrent hemorrhages and by the formation of a hematocele directly continuous with the original tumor. 10. These hemorrhages are signalized by sudden spasm of severe abdominal pain and by transient attacks of peritonitis. 11. The uterus is displaced by the hematocele, at first backward, afterward to the opposite side of the pelvis, and sometimes forward against the pubes. 12. The uterus throughout, although slightly enlarged, is empty.

Treatment of Extrauterine Pregnancy.—[The treatment of extrauterine pregnancy is by immediate operation as soon as the diagnosis is made. In cases left without operation, all the children and 76% (Martin) of the mothers will die. By early operation, the mortality should not be over 6% or 8% (Kelly). If the child is viable, an operation should be performed at once; if nearly so, operation should be delayed until the child is viable. Operation in these advanced cases is hazardous for the mother, as the placental circulation is active and vascular adhesions are numerous. The chief dangers are hemorrhage at the time of operation; and sepsis in cases in which all the placenta and membranes cannot be removed. If the child has just died, it is better to wait a few weeks, unless the symptoms are urgent, as the circulation in the placenta will then stop and it will become loosened, thus lessening the danger of hemorrhage and making its removal much easier.] Veit[3] urges that in early ectopic gestation, if the sac of the ovum has not been ruptured, the entire ovum be extirpated as soon as possible. If the sac ruptures into the abdominal cavity, and hematocele does not form, abdominal section should be done at once. When, however, hematocele has formed, and is distinctly limited, operation, he says, should be undertaken for positive and complicating indications only. In cases of tubal abortion, either with or without hematocele, and when a dead ovum is retained in the tube, there is no stringent call for interference. [This is dangerous teaching. The mere fact that a diagnosis of extrauterine pregnancy has been made is sufficient indication for immediate operation. Tubal abortions are equally as dangerous as tubal rupture.] V. Harrison [1] and C. Jewett [2] recommend the injection of the normal salt solution, begun shortly before clamping the vessels. The intravenous injection is most prompt, but the retromammary injection is simpler and safer.

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[1] Western Med. Rev., Mar. 15, 1899.

[2] Medicine, Mar., 1899.

[3] Zeit. f. Geb. u. Gynäk., Band 60, Heft 1.

Advanced cases require various treatments, according to the condition present. In such cases, Longyear [3] operates through the abdomen, drains through the vagina, and leaves the placenta to come away by disintegration. Whitney,[4] in cases at term, advocates waiting till after the death of the child and cessation of the placental circulation before operating, for the absence of any contractile wall to aid in stopping the hemorrhage when the placenta is loosened is a factor that is the cause of death in the majority of cases in which the operation has been done during the life of the child or shortly after its death. Bandl cites 37 cases in which the operation was done during the life of the child, with a fatal result in 31. In cases in which the fetus is dead and operation has been undertaken, there has been severe bleeding from the placental insertion, even after 9 weeks. Leitzmann quotes 10 cases that were operated upon in from 8 days to 5 weeks after the false labor, and of these 8 died. Of 23 cases operated upon in from 6 weeks to 1 year, 6 died. The rule has therefore been laid down that the operation should be done if the patient comes under observation at any time between the twenty-fourth week and the second year after the death of the fetus. After the latter time, there is very little danger to the mother, the fetus generally becoming calcified; and operative interference should not be advised unless other conditions (pregnancy, peritonitis) render it necessary. In these advanced cases, Ayers [5] says, operate by the vaginal method only when the fetus has already perforated its wall, or when it is suppurating and closely presses against the vaginal wall, with the fetal head presenting. Remove the placenta if the bleeding is slight, and drain. If the fetus is living, an abdominal section should be done; and if the placental circulation is active, the ovarian and uterine arteries should be ligated before removing the placenta. To control hemorrhage during the removal of the placenta, the aorta should be compressed, and the bleeding surfaces compressed with hot gauze. If extraperitoneal, the gestation-sac should be enucleated, if possible, Martin's method being followed, and including the uterus if necessary. If the placenta cannot be removed, the sac may be stitched to the abdominal wound, the placental surface dusted with tannin and salicylic acid, the cord cut off close to the placenta, and the cavity gently packed with sterilized gauze. If the placenta be found macerated or putrid, it should be removed. In *intraligamentous pregnancy*, Galabin [6] claims that the vaginal methods of operating, when practicable, secure several advantages, obviating the necessity of stitching the sac to the abdominal wall, and any temporary sinus causes but little inconvenience. As regards

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[1] Va. Med. Semi-monthly, Jan. 27, 1899.

[2] Brooklyn Med. Jour., Mar., 1899.

[3] Loc. cit.

[4] Boston M. and S. Jour., May 12, 1898.

[5] Obstetrics, Feb. 1899.

[6] Lancet, Jan. 14, 1899.

interstitial pregnancy, Beckman[1] says that before rupture, in favorable conditions, an attempt may be made to extract the ovum through the uterus, by dilating the cervix and incising the muscular partition. This method of procedure is possible only when the pregnancy has not advanced beyond the third month, when the uterus is large, and the partition-wall thin. Always difficult, it is often dangerous. Abdominal section is generally necessary. Either of 3 methods may be pursued: 1. Removal of the fetal sac and supravaginal amputation of the uterus. 2. Removal of the ovum, and closure of the sac by suture. 3. Removal of the product of conception and marsupialization of the sac. After rupture, laparotomy is always demanded; and, as a rule, supravaginal amputation of the uterus is required.

CORNUAL PREGNANCY.

Cases are reported as follows: Warsawski,[2] 2 cases, cured by abdominal section, both being near term; Serejnikoff,[3] 1 case, near term; the child survived a short time, and the mother made a tedious recovery; Gibson,[4] a case terminating by abortion; Porak,[5] a case near term, complicated by a double vagina; the child was delivered by forceps, but the mother died on the thirteenth day, of pulmonary embolism; F. Blume,[6] a case of normal labor in a uterus bicornis duplex with vagina duplex; and S. W. Kakels,[7] a normal delivery in a similar case. [Pfannenstiel reports pregnancy in 12 of 18 cases of double uterus collected by him. There were, on the whole, 26 pregnancies: 15 of these went to full term. The largest number of pregnancies in 1 woman was 7, reported by Max Simon. Of 21 cases of uterus didelphys reported by Giles, 15 were married; of these, 3 miscarried, while 11 had born children. In repeated pregnancy in the same person, the 2 uteri may alternately functionate. Ollivier reports 6 pregnancies in the left uterus. Sometimes there may be pregnancies in both uteri, as in a case reported by Satschawa. If pregnancy takes place in a rudimentary horn of a uterus bicornis, gravidity is threatened with the same danger as tubal pregnancy, with which condition it is very often confounded. Giles's statistics show that of 16 labors, 10 were normal and 6 complicated. The dystocia may result from uterine inertia, obstruction by the vaginal septum or by the empty uterus, displacement of the uterus, threatened uterine rupture, and transverse presentation of the fetus.]

LABOR AND THE PUERPERIUM.

Births and Deaths in Relation to the Time of Day.—Roseri[8] states that the greatest number of births takes place in the early hours of the morning, and the greatest number of deaths in the early hours of the afternoon. His conclusions were drawn from 25,000 deaths occurring at

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[1] Loc. cit.

[2] Centralbl. f. Gynäk., No. 37, 1898.

[3] Monatsch. f. Geb. u. Gynäk., Band 8, Heft 3.

[4] Canad. Jour. M. and S., Dec., 1898.

[5] Soc. Obst. et Gynéc. de Paris, Dec. 8, 1898.

[6] Annals of Gyn. and Ped., Nov., 1898.

[7] N. Y. Med. Jour., Dec. 24, 1898.

[8] Rev. des Sci. méd., July 15, 1898.

Cremona from 1866 to 1880, and from 36,515 births at Rome occurring between 1894 and 1897. The author seeks an explanation of these facts in the variations of activity of the maternal exchanges during the day; carbonic acid, which is more abundant during the earlier hours of the day, being an excitant of uterine contraction. The sympathetic nervous system, he considers, would be ordinarily more active at night, because it is not then controlled by the brain and spinal cord.

Antisepsis in Labor.—Jardine,[1] as an aid to cleanliness, would have a canvas lining for the obstetric bag, which could be removed and washed. Lysol is his favorite antiseptic. In supporting the perineum, he pushes the whole structure forward with the extended hand. He considers a pulse over 100 as threatening bleeding. He allows the patient to get on her hands and knees to micturate as early as possible. He objects to the usual open pots of so-called antiseptic vaselin carried from patient to patient. He urges the careful antepartum cleansing of the external genitals, but decries routine antepartum douching. Mars[2] describes the antiseptic precautions which he employs in Krakaw. His results are excellent, a mortality of 0.4% for all cases in 700 patients, and a septic mortality of 0.28%. His methods are, practically, to disturb the patient as little as possible. No douches before or after labor are given. The thighs and external parts are thoroughly scrubbed with soap and water and lysol. The hands of those who make examinations are very carefully cleansed; and the hand is always wet with antiseptics when the examination is made. S. Marx[3] employs in hospital and private practice, step by step, green soap, 95% alcohol, and 1 : 1000 bichlorid solution; and the scrubbing is rigidly and carefully done with a sterile brush. When he has recently come in contact with a septic case, a thorough potassium-permanganate and oxalic-acid scrubbing is gone through with at home. He examines as often as is necessary and consistent with the welfare of the mother and child. Goenner[4] reports the results of experiments to determine the practical value of alcohol as an antiseptic and disinfectant. His experiments were made by cleansing the hands in various ways, and then removing with an ivory nail-cleaner material from beneath the nail, and infecting animals with this material. His experiments showed very plainly that alcohol is much inferior to mercuric chlorid as an antiseptic, and is able to destroy the less virulent bacteria only. Streptococci and other active germs, and also spores of bacteria, are not affected. He advises the use of alcohol in connection with thorough washing with soap and hot water, and brushing with mercuric-chlorid solution. Döderlein[5] has for some time caused rubber gloves to be used by all who make vaginal examinations during labor. The results have been most satisfactory: lower puerperal temperature, shorter recovery, and less and cleaner lochia. The advantages of the use of gloves are: 1. They are impermeable. 2. They are easily sterilized in steam, boiling water, or antiseptic solutions. 3. When wet in 1% lysol solution they are smoother than the hand. The gloves are boiled for half an hour, and then placed in 1% lysol. The hands are first sterilized as carefully as possible, the gloves are filled with 1% lysol, and a glove is put on the hand used in examinations.

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[1] Scottish M. and S. Jour., May, 1898.

[2] Wien. klin. Woch., No. 18, 1898.

[3] N. Y. Med. Jour., Feb. 25, 1899.

[4] Centralbl. f. Gynäk., No. 18, 1898.

[5] Ibid., No. 26, 1898.

Vaginal Bacteria in Pregnancy and Labor.—[The normal condition of the vagina and uterus, as regards germ-invasion, is an interesting question of much significance. Since Döderlein published his monograph in 1892, this subject has appeared to be one of great fascination to large numbers of gynecologists and obstetricians. Several important facts seem at length to have been established. Döderlein was the first to isolate from the vaginal secretion of pregnant women a special organism, which he named the *vagina bacillus;* this organism has now taken a definite place in the list of the bacterial flora of the human body, all observers being agreed upon its occurrence and its morphologic characters. Döderlein further endeavored to establish its claim to be regarded as one of the chief defences of the genital tract against bacterial invasion from without. He attributed to it the normal acid reaction of the vaginal secretion. He believed also that he had proved by experiment that upon certain pathogenic organisms, notably streptococci, the vagina-bacillus exerted a powerful germicidal action. The well-known liability to infection after labor he attributed to the absence of the bacillus, which is washed away by the liquor amnii. Krönig and W. Williams have now independently proved that, with the exception of the gonococci, pathogenic organisms do not occur in the vaginal secretion of pregnant women, no matter what may be its physical characters. Krönig has shown that cultures of streptococci introduced into the vagina of a pregnant woman are destroyed within 6 hours. These facts have an important practical bearing. If the vagina does not contain pathogenic organisms during pregnancy, autoinfection from the vagina must be impossible; and the occurrence of septic infection must imply that organisms have been introduced from without.] Williams[1] has made bacteriologic examinations of the vaginal secretions of 92 pregnant women. He did not find the usual pyogenic cocci in the vaginal secretion of these patients; and but twice was the white staphylococcus present. The gonococcus is occasionally found in the vaginal secretion, and may extend into the uterus and tubes during the puerperal state. While it has not been demonstrated, it is possible that the vagina may contain bacteria which may give rise to sapremia and putrefactive endometritis by autoinfection.

Vaginal Douching.—[It is now the general consensus of opinion that antepartum douching is not only unnecessary, but actually dangerous, in that, by removing Döderlein's bacilli, it removes one of the safeguards provided by nature. If an antiseptic like corrosive sublimate is used, it will corrugate the tissues, hinder the descent of the presenting part, and render the tissues far more liable to laceration.] R. Jardine[2] recommends douches only (1) if there is any purulent or putrid discharge from the vagina, such as from gonorrhea or cancer of the cervix; (2) if any operation is to be performed in which the hand or instruments must be introduced into the uterus. L. N. Boston[3] concludes that: 1. A profuse leukorrhea during the latter months of pregnancy is no indication for vaginal douching; 2. The chemic reaction of a discharge has but slight effect upon its antiseptic powers; 3. The vaginal secretions of pregnant women rarely, if ever, contain pathogenic germs, except gonococci; 4. Vaginal douches favor the development of cervical gonorrhea and puerperal sepsis; 5. The vaginal secretions may contain streptococci, staphylococci, diplococci, and bacilli, all of which may be nonpathogenic; 6. A discharge from the cervix may show the presence of pathogenic bacteria after all other symptoms of sepsis have disappeared. As regards the *postpartum douche*, Jardine[1] recommends it only as follows: 1. In postpartum hemorrhage, when it should be given very hot (120° F.); 2. If there has been any purulent discharge previous to labor; 3. If the fetus has been putrid; 4. If the hands or instruments have been introduced into the uterus; 5. If the parts have been lacerated to any extent, and if the labor has been a very prolonged one. During the puerperium, it is necessary only when the lochia becomes putrid or when the temperature rises.

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[1] Am. Jour. Obstet., Oct., 1898.

[2] Brit. Med. Jour., Sept. 17, 1898.

[3] N. Y. Med. Jour., June 10, 1899.

Anesthetics in Labor.—An editorial[2] remarks that every severe pain produced by a shock of the nervous system weakens the organism. A severe shock brings about a weakening of the higher nervous centers—the brain; consequently, all the functions of the body will feel the effect of brain-weakness, and will become much less active, the final result being a feeble condition of the entire economy. Labor-pains have the same effect as other types; that is to say, they weaken the organism, while the act of labor requires, from the nature of the mechanism, a certain tension of force, in order that the abdominal and uterine contractions are sufficiently energetic to effect the expulsion of the fetus. The less tired the organism the more fruitful will be the contractions, and the result will be a more rapid accomplishment of labor, all conditions being equal. The less a woman is worn out after labor has taken place the greater is her security against pathogenic bacteria; consequently, when the patient is not weakened by the pains of labor, the puerperium will be of shorter duration. By similar considerations, it can be proved that the use of narcotics renders postpartum hemorrhage and laceration of the perineum less frequent, the latter circumstance being due to a certain amount of relaxation of the muscles of the perineum. What has been said refers to pains of medium severity; but it sometimes happens that pains produce, on account of their intensity or an exaggerated sensibility of the patient, a shock to the nervous system of such magnitude that it will result in a nervous crisis, and even death. All such accidents may be prevented by the use of anesthesia. The uterine contractions increase proportionately to the diminution of the general sensibility produced by the exhibition of some narcotic (Simpson, Stolz, Buisson, Barker, Bourdon, Playfair, Lombard, Madden, and Pélissier). Chloroform diminishes the duration of labor; and when employed uterine inertia is less frequent, according to Courty, Libet, Cohn, and Chailly-Honoré. It also spares the women from fatigue (Aubril de Montgeron); Championnière declares that it quickens the period of dilatation and the progress of labor, and it prevents shock, according to Campbell and Chailly-Honoré. Gebler, T. Saville, and Chailly-Honoré believe that narcosis by chloroform will prevent the occurrence of convulsions; and Tarnier, Chauppe, Pinchaud, Durètre, and others think that it will do away with other serious complications. Chloroform regulates the uterine contractions when they become irregular, overcomes rigidity of the cervix, and, when labor has ceased to progress, will cause it to resume again its natural course. It is distinctly proved that in cardiac affections chloroform, when given in very small doses (by drops), mixed with air, and only at intervals, has no bad effects on the heart or respiration. Futrel[1] remarks that during gestation the heart undergoes a normal hypertrophy, and consequently acquires an increase of capacity that serves to give quite a resisting power against the depressing influences of chloroform. He claims that this anesthetic shortens the period; prevents shock and exhaustion; reduces the liability to rupture of the cervix and perineum; does not affect the child, if properly used; does not produce uterine inertia nor induce postpartum hemorrhage; and makes recovery more rapid.

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[1] Loc. cit.

[2] Ann. of Gyn. and Pediat., Aug., 1898.

As regards **hypnosis in pregnancy and labor,** L. Lichtschein[2] states there are only 3 abnormal conditions in pregnancy in which suggestive therapeutics are useful, viz., (1) in pernicious vomiting; (2) anorexia; and (3) abnormal cravings for particular foods, and especially for unpalatable substances not usually regarded as food. That the obstinate vomiting of pregnancy is sometimes amenable to psychic influences is shown by its amelioration or cessation by the mere change of surroundings. When hypnosis can be used in complicated cases of labor, it possesses a decided advantage over chloroform. Some pregnant women cannot be hypnotized at all; others can be made to sleep only superficially; while others sleep deeply, but awake as soon as the pain becomes severe. Others sleep very deeply, and do not awaken during the pains, and on recovery have no recollection of what has taken place. There is still another class, in which, although the patient is awake, she feels no pain as the labor progresses. Joire[3] employs the following method: One hand is placed on the abdomen and the other over the eyes, and suggestions are made in a low and persuasive voice. [This method is dangerous, and probably only of service in pronounced hysterics.]

The Value of Ecbolics.—According to G. O. C. Mackness,[4] the advantages of quinin over ergot are its ease of administration in pill-form, its stability, its tastelessness, and the fact that it does not produce vomiting, as ergot often does. It acts rapidly and more certainly from its more reliable composition, and its chief advantage is that it does not produce tetanic contraction of the uterine walls, but merely increases the strength of the labor-pains. It is of especial value in simple uterine inertia, and to stimulate flagging and exhausted pains in a primipara. In these cases it often obviates the necessity for using forceps. It should be given in 8-gr. doses of the sulphate, repeated in 4-gr. doses for 2 successive hours, if necessary. Although not so useful in postpartum hemorrhage as ergot, it is more useful in the hemorrhages occurring during labor. W. J. White[5] remarks that investigations by Southern physicians seem to show that abortion is not especially common in malarial subjects; and that it is quite as likely to occur when no quinin has been given. Some even go so far as to state that the administration of quinin will arrest a threatened abortion due to malaria. Quinin has no effect upon a healthy pregnant woman. It acts as a powerful tonic to the general nervous system, and its stimulating effect on labor-pains is due to this action. White substitutes quinin for ergot in all cases; it causes more rapid delivery, exerts a slight analgesic power, and diminishes hemorrhage.

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[1] St. Louis M. and S. Jour., Apr., 1899.

[2] Med. News, Sept. 3, 1898.

[3] Nord. méd., July 1, 1898.

[4] Edinb. Med. Jour., May, 1898.

[5] New Orl. M. and S. Jour., Mar., 1899.

Klein[1] finds that lactose always stimulates an inert uterus, but is not efficacious till after complete dilatation of the cervix. As Chauveau has shown, lactose acts only when the muscle has accomplished its work, when a partial consumption of muscular glycogen has occurred. The minimum dose is from between $\frac{3}{4}$ oz. to 1 oz. It is better to repeat small doses than to increase the dose when the effect is not rapid. It acts quicker the more advanced the labor, and in multiparas than in primiparas. Ten minutes seem the shortest interval; but with a stubborn cervix lactose may take 2 hours to act. It does not influence the expulsion of the afterbirth, uterine contraction, nor the excretion of milk. In the case of an incomplete abortion, it acted within an hour, its action ceasing with escape of the retained placenta. It is free from poisonous properties and harmless to the fetus. It also acts on the general muscular system, and so is a tonic as well as an oxytocic.

Position in Labor.—O. Schmidt[2] recommends the lithotomy-position when the fetal head is in the canal or at the outlet. With the patient lying on her back, the physician and nurse, as soon as the pain begins, each grasp a leg, flex the knees strongly, and press them as strongly as possible upon the abdomen, at the same time keeping the limbs rotated outward and abducted. The labor is then said to be finished more rapidly and with less exertion on the part of the patient. The reason for this are increased abdominal pressure and the widening of the pelvic outlet, owing to the mobility of the sacroiliac synchondroses, which is increased in pregnancy. This position, however, diminishes the conjugate of the pelvic inlet.

Pinzani[3] has made a series of experiments, placing both living and dead bodies in Walcher's position, and carefully estimating and measuring the degree of pelvic enlargement: 16 women in the puerperal state were investigated in this manner, and undoubted increase in the anteroposterior diameter of the pelvic brim was observed. These patients, a few days after delivery, were placed upon the side and the conjugate measured; and then were measured when the thighs were flexed and the legs extended and carried strongly backward. A second series of 45 patients was also investigated. In these the true conjugate was measured by the fingers while the patient was in the lithotomy-position and in Walcher's position; and in the last a decided enlargement of the conjugate was observed. The third series of observations was made upon 2 cadavers; and here the results were striking. From these studies Pinzani concludes that the greatest enlargement in the true conjugate is obtained when the patient is first placed upon the back and then in Walcher's position. In contracted pelves as much as 2 mm. is gained in this way. The increase differs considerably in different cases, varying from 7 to 9 mm. upon the living patient. This posture will give the best results in cases in which the contraction is at the entrance to the pelvis, as in flat and generally contracted pelves.

The Third Stage of Labor.—[The third stage of labor has been the subject of much discussion, most of it theoretical, mechanical, and based on fundamental misconceptions of the nature of uterine action.

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[1] L'Obstét., Jan. 15, 1899.

[2] Centralbl. f. Gynäk., Nov. 27, 1897.

[3] Am. Jour. Med. Sci., June, 1899.

The various sections of the uteri of women who have died during or soon after separation of the placenta have given us invaluable information. Few of these sections exist, and every one added to the list is of great value.] Stephenson[1] has described a new specimen of this kind. The figure represents a vertical mesial section of a uterus during the third stage, the patient dying of an acute lung-affection immediately after the child had been delivered by forceps, no attempt to express the placenta having been made, which is still attached to the anterior wall. On the upper part of the amniotic surface are 2 sections of the umbilical cord. Stephenson calls attention to the close adaptation of the uterine wall to its contents. He concludes that when the placenta is still attached, the uterine wall at the placental site is thin—not much thicker than during labor. In portions of the wall other than the placental site, the inner layers of the wall act like a plastic mass moulded to the placenta; while the external layers contract and retract more regularly and thicken greatly. The internal and external layers are seen in the section to be separated by a line composed of sections of bloodvessels. This line runs parallel to the peritoneum, and nearer to it than to the mucous surface. When the placenta is detached, but not expelled, the muscular wall of the placental site begins to thicken. After the uterus is quite empty, the irregularities disappear as the retraction of the whole uterine wall becomes complete.

As regards the **management of the third stage of labor,** opinions vary. Spontaneous delivery of the placenta is to be expected. Tucker[2] carefully distinguishes between cases in which the placenta is born edge first or maternal (or fetal) surface first, and between spontaneous expression and Credé's manual expression. He finds that the natural blood-loss is 7.4 oz. when the placenta is expressed by the Credé method within 20 minutes after the child's birth, but only 5.7 oz. when expelled spontaneously within 20 minutes. Natural blood-losses occur relatively oftener when the placenta is born fetal surface outward than when the other surface presents; but in the latter case the quantity of blood lost is greater. The natural blood-loss is greatest in full-term labors and in primiparas. Post-partum hemorrhages are more frequent in spontaneous delivery of the placenta. The presentation of the placenta exercises, in cases of flooding, an influence the reverse of what is seen when there is only a natural blood-loss, for more blood is lost in flooding when the fetal surface is born outward; but true flooding is more apt to occur when the maternal surface is born outward. The order of placental births in reference to loss of blood, when all classes of cases are considered together, are as follows: 1. Edge first, maternal surface outward; average loss, 10.8 oz. of blood (most). 2. Maternal surface first and outward; average loss, 10.4 oz. 3. Edge first, fetal surface outward; average loss, 10 oz. 4. Edge first, fetal surface inward; average loss, 9.2 oz. 5. Fetal surface first and outward; average loss, 8.8 oz. (least). Littauer[3] remarks that, according to the returns of the local midwives, including 10,978 labors, the placenta was extracted by artificial means in 159; excluding all cases in which mere expression or extraction of the placenta was undertaken, there remain 59 in which the placenta was detached by the hand from its uterine connection. On closer analysis, the ratio obtained by Littauer, who eliminated all placenta prævias, was 1 manual detachment in 161 labors at term and premature, or 1 in 186 labors at or close upon term. He thinks this latter ratio excessive. Hönck found that 1 in 365 was enough in a well-ordered external maternity department. Von Budberg[1] recommends the following method of placental expression: With the expanded hand, the abdominal wall is depressed with a rubbing motion until the palm of the hand and the fingers approximate the posterior surface of the uterus, the thumb and thenar eminence resting on the fundus. With the other hand, the lower end of the uterus is grasped. Pressure is made only during a pain, and between the pains is gradually diminished; but the hands are not removed from the uterus until the placenta is expressed. By this method the bladder is also emptied, and catheterization becomes unnecessary. Von Budberg employed this method in 950 labors, and only 6 times was compelled to enter the uterus to remove the placenta.

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[1] Scottish M. and S. Jour., Jan., 1898.

[2] Am. Gyn. and Obst. Jour., June, 1898.

[3] Centralbl. f. Gynäk., No. 20, 1898.

Treatment of the Umbilical Cord.—R. Köstlein[2] understands, by *postnatal transfusion*, the blood which passes from the placenta to the fetus after birth. He reports his own investigations and also collects the literature on the subject. These researches were in regard to the change in weight of the child from the time it was born until the cord was cut, and also determining the amount of blood that flowed away when the cord was immediately severed. The increase in weight, when the cord was allowed to remain until pulsation ceased, varied from 0 to 130 gm. in primiparas, and from 0 to 80 gm. in multiparas. If the cord was severed immediately after delivery, he collected from it weights of blood varying from 10 to 152 gm. in primiparas, and from 5 to 115 gm. in multiparas. As to the cause of postnatal transfusion, he ascribes it to the contractions of the uterus, which force the blood from it into the placenta, and so lead to transfusion. He thinks that children whose cords are severed late have a decided advantage. Sehrwald[3] observes that the usual haste to sever the umbilical cord results in the loss to the child of a large amount of blood, sometimes reducing the blood in its circulation from the 158 gm. it should have, with a weight of 6 pounds, to 58 gm. He ascribes to this fact many cases of infantile weakness and lack of resistance to disease. The cord should never be cut until all pulsation has ceased; and this applies with extra force to the apparently dead, in whom the circulation should be stimulated with warm compresses on the heart, and on the centers of the heart and respiration at the back of the neck. When the cord pulsates, proceed by artificial respiration in the usual way. P. Bar[4] compresses the cord by means of forcipressure forceps sterilized by heat. The forceps is then surrounded by a pad of absorbent cotton, and left for from 36 to 48 hours under the binder. J. J. Mulheron[5] describes the method of tying the cord as practised in Vienna. A ligature is tied at a point about 5 in. from the umbilicus; then the cord is severed and allowed to bleed from the maternal side. The ends of the ligature are then seized and carried back to a point ½ in. from the umbilicus, where a second tie is made. The result is a loop of cord between the 2 ligatures. This is an effective precaution against hemorrhage and septic infection. R. L. Dickinson[6] recommends electrohemostasis with

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[1] Deutsch. med. Woch., Oct. 27, 1898.
[2] Zeit. f. Geb. u. Gynäk., Band 39, Heft 1.
[3] Deutsch. med. Woch., Sept. 8, 1898.
[4] Jour. des prat., June 4, 1898.
[5] Med. Age, May 25, 1899.
[6] N. Y. Med. Jour., Mar. 4, 1899.

Skene's forceps. The vessel or stump grasped in the bite of this instrument is, in the space of ½ to 2 minutes, reduced to a white, horny ridge, comparable to the edge of one's finger-nail in consistence and color. This edge does not slough, but promptly becomes reorganized. As Pryor has shown, water-pressure applied to the vessel from behind will make it burst elsewhere, but not at the end thus treated. Von Budberg[1] has employed an alcohol dressing for the umbilical cord in about 200 cases. The alcohol possesses antiseptic properties, and is said to dissolve the fatty material and dry the tissues. After the infant has been bathed, the cord is dried and surrounded with absorbent cotton soaked in alcohol. Over this is placed a second dressing of absorbent cotton; and the usual binder is then applied.

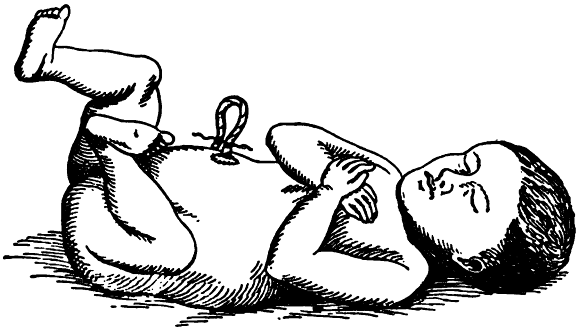

FIG. 52.—A new method of tying the cord (Med. Age, May 25, 1899).

This dressing is changed once or twice a day, till the cord falls off. During this period it is best not to bathe the child. Either absolute or dilute alcohol may be used.

The Pulse in the Puerperium.—Varnier[2] believes that he has confirmed Whytt's, MacClintock's, and Blot's observations by careful clinical researches. He publishes a valuable series of pulse-curves. Comparing 67 cases of normal pregnancy and puerperium, he demonstrates that the pulse-curve in the 35 subjects in childbed was much lower than the pulse-curve in the remaining 32, who were pregnant. He also prepared and compared charts of 36 patients with normal temperature before and after delivery, in whom the pulse was also taken under the same conditions. In 26, the pulse-curve was distinctly lower in the puerperium; in 6, there was practically no change; in 4, only the pulse-curve was higher in the puerperium than before delivery. [The opinions of Blot are substantially correct; the fatigue of normal delivery does not raise the pulse, and the slow pulse of an uncomplicated puerperium does not necessarily imply that the particular patient's pulse must have been slow before conception, whether through physiologic or pathologic causes.]

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[1] Centralbl. f. Gynäk., No. 47, 1898.

[2] Ann. de Gynéc. et d'Obstét., Jan., 1899.

MATERNAL DYSTOCIA.

Puerperal Eclampsia.—W. C. Howle[1] regards this as a comparatively frequent complication of pregnancy. Statistics vary from Auvard, 3 in 1000, to those of the Philadelphia Board of Health, 1 in 170. Lershman states that it occurs once in 450 labors; and Lusk says, once in 500. From the statistics of Goldberg, eclampsia occurs in the 3 periods of pregnancy, during labor, and after labor, in the following order of frequency: 21.07%, 56.34%, and 22.59%. Pajot estimates the percentage of deaths at 50, and Kaltenbach at 30. All observers agree that the primipara is much more liable to this condition, and plural births especially predispose to it. Bar[2] proposes to call puerperal eclampsia without convulsions by the name of *eclampsism.* He contends that in many cases there are no convulsions, but intense neuralgia, nausea, diarrhea, albumin, edema, and other symptoms of eclampsia; such cases may speedily prove fatal, and autopsy reveals characteristic lesions of the kidneys and ecchymotic spots. [The *etiology* of eclampsia has, as usual, elicited considerable discussion during the year.] With a view to proving the fetal origin of the disease, Baron and Castaigne[3] have carried out an important series of experiments. Within recent years pathologists have come to the conclusion that puerperal eclampsia is not due to maternal, renal, or hepatic diseases, but to absorption of toxic products from either the fetus or its annexes. The authors find that certain substances injected directly into the fetus or the amnion are rapidly absorbed by the maternal organism, provided the fetus is living, but much more rapidly from the fetus than from the amnion. From this, it would seem that the fetus secretes certain toxic substances into the blood and amniotic fluid. If the fetus is dead, substances injected into either the amnion or fetus do not seem to pass into the maternal circulation. [This would seem to throw considerable light upon the various phenomena of eclampsia, and especially in explaining why the death of the fetus is followed by cessation of the convulsive seizure.] K. B. Hofmann[4] has examined the cerebrospinal fluid and urine from a case of eclampsia. The fluid was clear and alkaline, and the specific gravity 1009. With copper sulphate and sodic hydrate it gave a violet color, but no biuret-action. It contained a reducing-substance, the exact nature of which could not be made out. A small quantity of carbonic acid was present, which was also in the urine. The presence of Drechsel's reaction showed that in the cerebrospinal fluid in eclampsia there is an abnormal amount of an ammonium salt, which, in the presence of an alkaline carbonate and carbon dioxid, is converted into ammonium carbaminate. This must also occur in the blood and other fluids; and therefore a toxemia with ammonium carbaminate results. [The high percentage of ammonium salts in the urine is in favor of this view.] W. E. Fothergill[5] is strongly in favor of the autointoxication-theory of the production of eclampsia; and further believes that this might afford a new system of classification of the various disorders of pregnancy, a large number of which might in the future be classified under the term "hepatic toxemia," as suggested by Pinard. G. Bouffe de Saint-Blaise[6] holds that the autointoxications that exist normally give rise to morbid phenomena only when the organ of transformation (the liver) and those of elimination (the kidneys) are insufficient. The liver appears to have a preponderating action; and this may be disturbed by previous illness, chronic renal disease, or an accidental affection, such as a slight fever. The action of the kidney, though marked, is of secondary importance to that of the liver, accidents sometimes occurring even when the kidney is healthy. J. L. Kortright[1] states that 30% of pregnant women have albuminuria, with or without symptoms. Edema of the feet frequently occurs without other symptoms. It is of much greater significance in primiparas than in multiparas. Marked constipation is frequently another early symptom. Patients who vomit after they have felt life should report at once to their medical attendant. A prolonged, severe frontal headache, especially if associated with high arterial tension and rapid pulse, is usually the premonition of poisoning of the central nervous system. K. Winkler[2] remarks that the spots of hemorrhage and necrosis which have been discovered in the liver in many cases of eclampsia have likewise been found in many infectious diseases, and particularly in cases of epileptiform convulsions. In puerperal convulsions the liver can be mechanically damaged by pressure between the pregnant uterus and the muscles of the abdominal wall and diaphragm. Metastasis of hepatic cells by the circulation is not confined to cases of puerperal convulsions, but may take place likewise in other conditions; in cases of convulsions, the great variations of pressure to which the bloodvessels are subjected may serve to explain the entry of cells from the liver, bone-marrow, and placenta into the bloodvessels, and their metastasis to the lungs and other organs. Sudden variations in blood-pressure likewise explain the occurrence of hemorrhages in the pia mater and the brain-substance. When medical treatment is possible, Dutto[3] attaches great value to the administration of thyroid tablets, for the reason that it has given good results in all diseases depending on an accumulation of nitrogenous substances in the blood. R. C. Norris[4] says the best preventives are proper diet, frequent baths, plenty of outdoor exercise, the correction of constipation, rest in bed with the body in the genupectoral position, flushing the colon with 2 gallons of salt solution, calomel at intervals, and the use of rochelle or epsom salt. The plan of treatment as adopted by Hirst[5] is as follows: During the attack itself administer chloroform. As soon as the attack passes off, give hypodermically 15 drops of the fluid extract of veratrum viride, and a dram of chloral in solution, by enema. Place upon the tongue 2 drops of croton oil diluted with a little sweet oil. Induce diaphoresis by hot packs and extra bedclothing. Inject by gravity under the breast a pint or more of decinormal salt solution, or several quarts of the solution by enema. If convulsions recur, repeat the veratrum in 5-drop doses if the pulse is quick and strong. If the face is congested and the pulse full, employ venesection enough to reduce the pulse. The chloral may be repeated 2 or 3 times during the attack. Use stimulants if the pulse is weak and rapid. If the convulsions cease, and the patient is in a stupor, but can be aroused enough to swallow, give a dessertspoonsful of concentrated solution of epsom salt every 15 or 30 minutes until free catharsis takes place. Rocchi[1] favors veratrum viride. He claims that it increases cardiac contraction, raises the blood-pressure, and increases elimination of urine, and with it the poisons in the blood of albuminurics. He uses morphin and bromids as sedatives, reserving chloral or chloroform for convulsions. In addition to the foregoing, T. G. Stevens[2] advises the use of dry cups to the loins, followed by linseed-meal poultices. H. R. Clauson[3] uses veratrum viride in large doses—10 to 20 drops of the tincture, given hypodermically or by the mouth, every 3 minutes. It produces profuse sweating, and lowers and steadies the heart's action, giving a fuller pulse with regular respiration. He has used as much as 2 drams of the tincture in less than 12 hours. Brunelli[4] says that, after other measures have failed, artificial delivery is indicated. If labor is already under way, nature may be assisted; but if not, and the condition is very serious, Cesarean section is indicated under chloroform-anesthesia. [A. Macdonald found, from postmortem examinations of eclamptic patients, extensive anemia of the cerebrospinal centers, with congestion of the meninges without edema. He attributed the convulsive attacks to irritation of the vasomotor centers from an anemic condition of the blood, produced by the retention in it of excrementitious matters that should have been thrown out by the kidneys. Applying the recognized physiologic actions of veratrum viride, we know that one of its alkaloids—jervin—is able to reduce the force of the heart-beat by its direct influence on the cardiac muscle; and that it is capable also of producing a general vasomotor paralysis; that it likewise reduces the pulse-rate by a direct action on muscle; while the other alkaloid—veratroidin—by stimulating the inhibitory nerves, also reduces the pulse-rate; and both alkaloids are, in addition, depressants to the motor centers in the spinal cord. We have, therefore, in veratrum viride an agent the physiologic properties of which meet the supposed pathologic conditions in puerperal eclampsia; namely, increased arterial tension and cerebrospinal excitement.]

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[1] Lancet, May 27, 1899.
[2] Univ. Med. Mag., vol. xi., No. 6.
[3] Arch. de Méd. expér., Sept., 1898.
[4] Centralbl. f. innere Med., July 16, 1898.
[5] Lancet, Feb. 4, 1899.
[6] Ibid.

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[1] Brooklyn Med. Jour., Apr., 1899.
[2] Virchow's Archiv, vol. 154, p. 187.
[3] Rev. de Thérap. méd.-chir., July 15, 1898.
[4] Jour. Am. Med. Assoc., May 20, 1899.
[5] Med. Rec., Mar. 4, 1899.

Contracted Pelvis.—J. W. Williams,[5] from a study of 1000 cases of labor at Johns Hopkins Hospital, has reached the following conclusions: "In our material the frequency of contracted pelvis (13.1 %) corresponds very closely with the general average of frequency observed in Germany. This is due, in large part, to the presence of a large black population in Baltimore, 469 out of the 1000 cases being colored women. Contracted pelves are 2.77 times more frequent in black than in white women, and occur in 19.83 % of the former and 7.14 % of the latter. Contracted pelves are observed in about 7 % of the white women of this country, or about once in 14 cases. Contracted pelves, accordingly, occur in our white women about as frequently as in many German clinics, notably Rostock, Breslau, and Basel, and occur quite as frequently as in Paris, and more frequently than in Vienna. According to Pinzani,[6] Walcher's posture gives the best results in cases in which there is pelvic contraction at the inlet, as in flat and generally contracted pelves. Forceps and version are very frequently indicated with the gain in pelvic room given by this position, and many difficult labors are made less severe by its employment. There is a marked increase also in the transverse diameter of the pelvic brim when the patient is in this position. Huppert[1] states that Walcher's position causes an immediate increase in the severity and regularity of the labor-pains. The position is of benefit only if the fetal head is yet movable above the brim, or has entered the inlet with a small proportion of its diameter.

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[1] Rev. de Thérap. méd.-chir., July 15, 1898.
[2] Lancet, May 14, 1898.
[3] Va. Med. Semi-monthly, Jan. 13, 1899.
[4] Ibid.
[5] Obstetrics, May, 1899.
[6] Am. Jour. Med. Sci., June, 1899.

Pregnancy Following Ventrofixation of the Uterus.—Heinricius[2] states that when the uterus is fixed anteriorly to the abdominal wall, the following possibilities must be admitted in favor of a normal development of the pregnancy: 1. Tension and rupture of the adhesion; relapse. 2. The adhesion undergoes the same alterations as the uterus, vagina, and ligaments, thus enabling the uterus to undergo full development. 3. The free wall of the uterus admits of a complete compensatory dilatation without rupture of the adhesion. 4. The relaxation of the abdominal wall may allow a sufficient development of the uterus upward during pregnancy and parturition. The absence of these possibilities gives the key to the different kinds of complications observed during pregnancy and parturition. A. Lapthorn Smith[3] has collected 2500 cases of ventrofixation by 41 operators. Pregnancy followed in only 148 cases; but in 30% of these (36 cases) there was pain, miscarriage, or difficult labor requiring obstetric operations. When, however, suspensio uteri was performed the patients were free from pain during pregnancy, and the labors were less tedious; they did not require resort to serious obstetric operations. [It is claimed by some that a third method; namely, intraabdominal shortening of the round ligaments, is preferable to either ventrofixation or suspensio uteri. The round ligament then develops as pregnancy advances, and the dragging, pain, and other more serious accidents which are present in 30% of the cases of ventrofixation are certainly avoided.] R. C. Norris[4] has done within the past 3 years probably over 50 ventrofixations. Of this number, difficulty was encountered 6 times, 2 of which had been due to pregnancy.

Adherent Placenta.—F. A. Nyulasy[5] states that the cementing material in adherent placenta is composed primarily of organizing fibrin, which is probably derived from small extravasations of blood into the decidua, the coloring-matter being gradually absorbed and the fibrin partly organized into connective tissue. He believes that the condition is much more frequent than is generally supposed. Endometritis is the exciting cause, which usually antedates the morbid processes occurring in the placenta and leading to its adhesion. C. B. Reed[6] believes that atony uteri is the most important etiologic factor. This occurs in 2 forms; the first affecting the whole uterus, and the second affecting the placental site. The frequency with which adherent placenta is found in connection with inversio uteri, he claims, is remarkable; and he believes that a causal relation exists between them. [There is undoubtedly a causal relation between the two; but the inversion is the result of improper treatment of the placenta, and not a consequence of the disease itself.]

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[1] New Orl. M. and S. Jour., Oct., 1898.

[2] Nordisk Medicinst Arkiv., No. 24, 1898.

[3] Tr. Am. Gyn. Soc., 1898.

[4] Jour. Am. Med. Assoc., Mar. 11, 1899.

[5] Intercol. Med. Jour. Austral., July 20, 1898.

[6] Jour. Am. Med. Assoc., May 6, 1899.

Burkhardt[1] is inclined to discredit the adhesion-theory of **retained placenta,** as there is neither anatomic nor clinical evidence to bear it out. There is no evidence of a radical alteration of structure in the placenta and uterine mucosa, which would be required to make such adhesion a fact. Burkhardt gives his support in part to the views of Bayer, according to which a placenta is retained because it is attached to some part of the uterus where the muscular fiber is relatively weak, and, in particular, to the angle at the opening of the tube. In 15 cases of retained placenta investigated by Burkhardt, the site was invariably abnormal. When seated in the tube-angle of the uterus, the contractions, which lower down would expel a normally seated placenta, have the reverse effect; they produce a muscular stricture beneath the placental site, and thus retain it indefinitely.

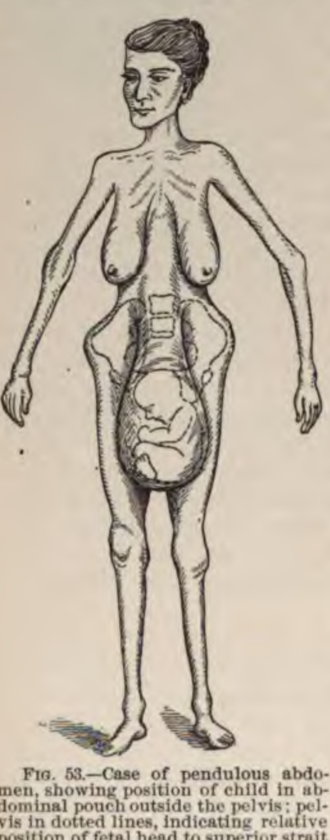

FIG. 53.—Case of pendulous abdomen, showing position of child in abdominal pouch outside the pelvis; pelvis in dotted lines, indicating relative position of fetal head to superior strait (Brooklyn Med. Jour., Nov., 1898).

Dystocia from Pendulous Abdomen.—J. W. Hyde[2] reports a remarkable case. The patient was delicate, anemic, and wasted, with a history of long-continued prior disability. She was scarcely strong enough to move about her room. The same atony that was so marked in the abdominal walls seemed to pervade the entire economy. This was the patient's third pregnancy. An attempt to make an examination disclosed great abnormality of the abdomen. Its contents were mostly found in a long pouch extending downward as far as the junction of the lower with the middle third of the thigh. The walls of the pouch were exceedingly thin, and the parts of the child could be determined as readily as though covered by a thin blanket. Vaginal examination showed the fetal head presenting, and the os dilated about one-third *in front* of the symphysis. The patient was chloroformed, the pouch turned back, and the child's head forced into the superior strait. Forceps were applied, and delivery rapidly and safely effected. There were no untoward results following delivery, but the abdominal walls never regained their tonicity.

Rupture of the Uterus.—Treyman[3] quotes Winckel's statistics on the frequency of rupture of the uterus, as follows: Collins, 1 in 482 births; McClintock, 1 in 737; Bandl, 1 in 1200; Jollys, 1 in 3403; Ramsbotham, 1 in 4429. K. H. Dischler[4] states that anterior uterine subperitoneal emphysema is a tangible sign of uterine rupture. It indicates a grave danger for the pregnant woman and the child, as it affords an exceptionally rapid means of infection which will result in peritonitis. Amputation following laparotomy, according to Porro, is immediately indicated, extraperitoneally if possible. A. W. Mayo Robson[1] holds that when rupture occurs before delivery and the child escapes into the abdominal cavity, nothing but immediate abdominal section can offer any chance of saving the patient. If skilled assistance is not directly at hand, it should not be waited for, but the best that can be secured at once should be used. In those cases in which the rent is in the lower part of the uterus and occurs during delivery, but is not noticed until afterward, when hemorrhage and increasing shock call attention to some serious condition, immediate operation is not necessary. To complete the diagnosis, an intrauterine examination may be necessary; but the best treatment is the gauze pack. All fluid should be carefully pressed out from the abdominal cavity through the rupture, which may be enlarged if necessary. The uterus should be curetted and a strip of iodoform gauze packed in, filling Douglas's pouch, the rupture, and the upper part of the vagina; and a firm pad should then be placed over the lower part of the abdomen. The packing should be changed on the third day, and on every second day after that. This is usually all that is necessary in these cases, and the recovery is uninterrupted.

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[1] Beiträge z. Geburts. u. Gynäk., Band 1, Heft 2.

[2] Brooklyn Med. Jour., Nov., 1898.

[3] St. Petersburg. med. Woch., Aug., 1898.

[4] Arch. f. Gynäk., Band 56, Heft 1.

Inversion of the Uterus.—[The frequency of this accident is hard to determine, because of the great variations in different sets of statistics. According to the figures of the Rotunda Hospital, during a period of 123 years, 190,833 women have been delivered, and only 1 case of acute inversion has been observed. Winckel, in more than 20,000 labors, has not seen a case of complete inversion; nor had Braun in 250,000 labors. Kehrer states that the accident is thought to occur once in 2000 labors. Crosse collected 500 cases, 450 of which followed delivery; he noted that in 28% of recorded cases of inversion death occurred in a few hours; that in 42% death followed later; and that in 7% the accident led to a fatal result more than a year after its occurrence. Mann states that the puerperal cases comprise between 85% and 90% of all the cases.] Stone[2] records 25 cases taken from the literature of the last 5 years: 6 of the patients died—most of the cases occurred in young women, the youngest, 17; the eldest, 44. Sixteen were primiparas; 1 had prolapsus uteri, 2 contracted pelvis, 1 uterine disease and albuminuria before pregnancy, 1 phthisis. In 22 the labors were abnormal, 9 very prolonged, 4 precipitate, 4 forceps deliveries, 2 versions, 1 premature (6½ months); 2 had very short cords; in 8 traction was used. In 10 the placenta was said to be adherent; 1, prævia; 2, succenturiata. B. B. Browne[3] mentions, among the causes of inversion, upright position during parturition, short cord, distention of the uterus by liquor amnii, severe coughing, blows on the abdomen, fatty degeneration of the uterus at the placental site, intrauterine polypi, lifting heavy weights while menstruating. J. T. Scollard[4] adds to these, predisposition as a cause. This may be aided by pressure of the intestines from above. Atony of the uterine muscle may be the underlying cause, either with or without predisposition. Irregular contraction of the fundus also must be noted. The most frequent time of occurrence is at the end of the second stage of labor, during some form of effort to deliver the placenta. The treatment consists in prompt reduction of the inversion under as thorough asepsis as possible. [Spontaneous reduction of the completely inverted uterus has been observed by Spiegelberg, Büchler, Thatcher, Meigs, and Shaw. This is very rare, however.]

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[1] Practitioner, July, 1898.

[2] Am. Jour. Obst., Aug., 1898.

[3] Ann. of Gyn. and Pediat., June, 1899.

[4] Ibid., Nov., 1898.

FETAL DYSTOCIA.

Multiple Pregnancy.—M. Herzog[1] presents 3 cases of supposed superfetation in the human female, and enters into an exhaustive study of the literature of the subject. He believes that the results obtained in his investigation demonstrate fairly well that there is very little, if any, reasonable doubt left as to the occurrence of superfetation in the human race. Superfetation, he says, is to be looked upon as a pathologic condition which leads to abnormal processes in the course and termination of pregnancy. T. Wilson[2] remarks that although twins derived from separate ova are 7 times more common than those derived from a single ovum, hydramnion appears to occur nearly as frequently in the latter variety as in the former. He reports 2 such cases, and calls attention to the fact that the affection ends in nearly every case in premature delivery before the end of the seventh month. In the majority of the cases labor comes on spontaneously; in about 20% it has to be induced. The cause of the hydramnion is found in the relation of the vessels of the two fetuses to the common placenta. The twin whose vessels run a shorter or more direct course obtains an undue share of blood from the placenta, in which anastomoses take place between the vessels belonging to the 2 fetuses. Thus one fetus grows faster than the other; and the heart of this one becomes not only absolutely, but also relatively, larger than that of the other. This leads to increased absorption of fluid in the placenta, and so to increased exudation by this twin. This increased exudation takes the form of excessive secretion, certainly from the kidneys, probably from the skin, and possibly also from the portion of placenta belonging to the affected fetus, and the accumulation of these discharges leads rapidly to enormous hydramnion of the same fetus.

The Trendelenburg Position in Prolapse of the Funis.—R. Abrahams[3] says that after making the diagnosis of funic prolapse no time should be lost in placing the patient in the Trendelenburg position. The carefully sterilized hand should then be introduced into the vagina and kept there until after the next pain, to make sure not only that the cord is reduced, but that it remains reduced. If the pains are strong and labor can be soon terminated, or the head can be made to engage, so as to preclude the possibility of a return of the prolapse, the patient may be kept in the Trendelenburg position; but if this is not the case, the patient must be lowered half-way. If there is still no tendency fully to plug the os, delivery should be hastened by the use of forceps or by version. The Trendelenburg position is particularly favorable for version.

Rupture of the Umbilical Cord.—Albert[4] divides injuries to the umbilical cord into 3 classes: 1. Rupture of individual vessels in the cord. 2. Rupture of the cord as such. 3. Avulsion of the cord from

[1] Chicago Med. Recorder, July, 1898.

[2] Lancet, June 17, 1899.

[3] Phila. Med. Jour., Oct. 8, 1898.

[4] Arch. f. Gynäk., vol. lvi. part 1.

the child's abdomen or from the placenta. Rupture of the vessels may be due to varix or to an aberrant vessel associated with a velamentous placenta; or to a vessel passing along the membranes to a succenturiate placenta. Rupture of the cord itself may be due to operative procedures or to a fall of the child in precipitate labor, the mother standing. Spontaneous rupture of the cord during delivery in the horizontal position has been reported by several observers. Avulsion of the cord from the skin of the abdomen has been reported by Weeder, Dupuys, and Bontemps and Perret. Of avulsion from the placental tissue, Albert has found no case in medical literature; but he reports a case that occurred in the Dresden Klinik.

Occipitoposterior Position in Labor.—Müller[1] distinguishes 3 posterior positions of the occiput—right, left, and sacral. The 2 former in most cases end in spontaneous rotation to the front; occasionally some other presentation develops. It is possible for birth to occur by the forehead pivoting under the pubes and the occiput being forced out over the perineum. It is important to recognize the difference between a presentation of the parietal bone and a posterior rotation of the occiput. Sacral rotation of the occiput is rare. Labor is prolonged in these cases, and laceration of the pelvic floor is inevitable. It is possible, however, in most cases to deliver the patient with forceps, although mother and child will undergo severe pressure during labor. Fortunately, over 96% of all posterior cases terminate in spontaneous anterior rotation. C. H. Glidden[2] emphasizes the value of abdominal palpation in the early diagnosis of occipitoposterior positions. He also calls attention to the prolonged first stage as an important aid in the diagnosis. Before engagement anterior rotation may be favored by placing the patient in the knee-chest position, the head then dropping away from the pelvic brim, and being free to rotate on its axis. C. M. Green[3] also urges the advantage to be gained by the proper application of the force of gravity by posture. This is most effective when the head lies at the pelvic brim; yet it is also noticeable when the head is in the pelvic canal. The kneeling posture will favor anterior rotation in some of these cases.

OBSTETRIC OPERATIONS.

The Induction of Abortion and Labor.—W. D. Haggard, Jr.,[4] defines the conditions which, in his view, justify the induction of abortion. They are: 1. Uncontrollable vomiting, which very rarely indicates the operation. 2. Renal disease, especially interstitial nephritis, when a milk-diet does not decrease the albumin. 3. Advanced pulmonary disease. 4. Cardiac trouble, only when the dilatation is not compensated by the physiologic hypertrophy of pregnancy. 5. Chorea, in extreme instances, in hope of benefiting the condition and to prevent insanity. 6. Pelvic deformity that will not permit the induction of premature delivery, and unless the mother elects a Cesarean section. 7. Cancer of the uterus, only when the disease is too far gone to wait for viability or the woman refuses the Porro operation. J. Moir[5] practises

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[1] Monatsch. f. Geb. u. Gynäk., Band 7, Heft 5.

[2] Med. News, Mar. 25, 1899.

[3] Boston M. and S. Jour., May 25, 1899.

[4] Southern Med. Pract., Sept., 1898.

[5] Scottish M. and S. Jour., vol. ii., No. 6.

gradual dilatation of the cervix in inducing labor, never attempting delivery until the cervix is thoroughly softened. He strongly deprecates haste in these cases, and urges patience and very gradual delivery. His method consists in allowing a few ounces of the amniotic liquid to escape through a silver male catheter, which is gently inserted between the uterus and membranes for several inches. The point of the catheter has been cut off, and the stylet is gently pushed through the membranes. He occasionally follows this by the use of tents or of a small Barnes bag. He dilates the cervix with a steel rectal bougie, which is introduced daily for several days, the fingers and instrument passing around the cervix to loosen gradually the membranes. [This method does not appeal to us as especially safe. The results obtained by it are not so good as those that follow the method generally in vogue in this country.] Spinelli[1] described, at the Congress of Obstetrics and Gynecology in Turin, a new method of inducing premature labor, which consisted in introducing the index-finger into the cervical canal, previously dilated in primiparas, and then passing beyond the internal orifice. The inferior portion of the membrane is gently torn with the hooked finger, and a strip of gauze impregnated with ichthyol glycerolate is inserted. This should be placed between the ruptured membrane and the lower segment of the uterus. This maneuver may be executed by drawing down the uterus by means of a forceps applied to the posterior lip of the cervix. The vaginal canal is then packed with sterilized gauze. Labor usually occurs in about 10 hours.

Forceps.—Dickinson[2] warmly commends a combination of the Trendelenburg and Walcher positions for the forceps operation at the pelvic brim. The advantages claimed for this position are that the vulva is at a convenient height for the standing operator; that the direction of the canal formed by the vagina and the cervix, which leads into the uterine cavity, is more direct and more nearly level than that in any other posture; and that it possesses the advantages of the Walcher posture without its disadvantages. S. Marx[3] gives the following causes for slipping of the forceps: 1. An improper application; *i. e.*, want of coaptation to the fetal head, or the grasping of an unusually long diameter of the head. 2. Failure to introduce the blades sufficiently far to make the cephalic curve conform to the fetal skull. 3. A vicious position of the head. The head must be in a normal position, or so relatively normal that operative interference will readily convert it into one; it must also be engaged, or at least fixed, at the brim. He sanctions the application of forceps above the brim only when rupture of the uterus exists or is impending. In the discussion before the British Medical Association, on the use and abuse of the midwifery forceps, R. M. Murray[4] calls attention to faulty technic, and especially the failure to employ the most efficient instrument; namely, the axis-traction forceps. He favors its use in all cases, and even for the low operation, in order to protect the soft parts from extensive laceration. He also gives, as the second fault of the technic, the failure to apply the forceps to the biparietal diameter of the child's head wherever situated. Toth[5] concludes that the high forceps operation is not so dangerous for mother and child as it is often said to be. On the contrary, it is more favorable for both than version, especially podalic version in head presentations. In all cases of pelvic contraction of the first degree, and even of the second degree (conjugate diameter under 9.5 cm.), the high forceps operation is preferable to prophylactic version. In cases in which the high forceps operation fails, perforation should be done without further delay. Root[1] gives as indications for the application of the forceps at the pelvic outlet the following: Inefficient pains or uterine contractions; short umbilical cord; cases in which the anteroposterior diameter of the head, through presenting, fails to engage in the corresponding diameter of the outlet, the head being more or less movable. W. Colquhoun[2] says that if the head is high in the pelvis—and, indeed, until it has reached the floor—it is of advantage to have an indicator of the direction of the axis, and also the power of pulling freely in the direction of the axis; but he believes that in every case both hands should be used, one grasping the handles of the forceps, and the other the traction-handle. The hand that grasps the handles of the forceps can apply leverage when necessary, steady the progress of the fetus, and obtain information of that progress, which would not be obtained by merely pulling on the traction-handle. When the head has reached the floor of the pelvis, it is especially necessary, for the sake of the perineum, to complete delivery without having recourse to the traction-handle. In order to make proper traction with the ordinary forceps, T. A. Dukes[3] gives the following directions: Insert the blades so that the lock falls together, and let the handles assume their natural position close to the symphysis pubis, pointing forward. Allow them to remain during the whole process of extraction in this position, pointing more and more forward as the head descends. To extract, grasp the forceps at or above the lock with the left hand, and place the hollow of the right hand on the posterior surface of the extremities of the handles, so as to be able to push with the right hand and pull with the left, by an action somewhat similar to that used in making a stroke with a paddle. Following the same suggestion, J. F. Le Page[4] has devised an axis-traction forceps (Fig. 54). The line *AB* indicates the true axis, and *AD* the direction

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[1] Gaz. med. lombarda, Dec. 12, 1898.
[2] Am. Jour. Obst., Dec., 1898.
[3] Med. Rec., Apr. 15, 1899.
[4] Brit. Med. Jour., Aug. 20, 1898.
[5] Ibid., May 7, 1898.

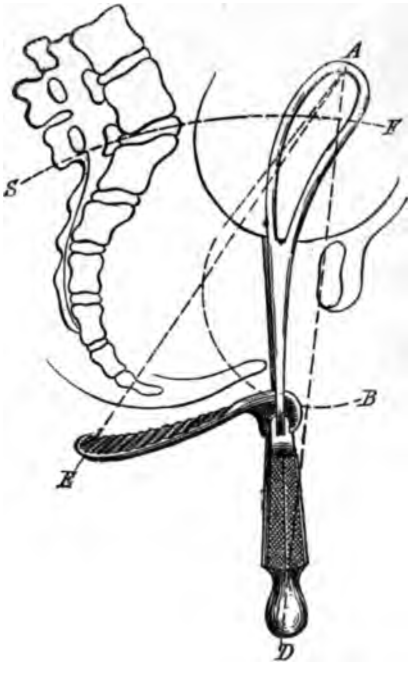

FIG. 54.—Axis-traction with ordinary forceps (Brit. Med. Jour., Dec. 24, 1898).

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[1] N. Y. Med. Jour., Oct. 29, 1898.

[2] Lancet, Nov. 12, 1898.

[3] Brit. Med. Jour., Nov. 5, 1898.

[4] Ibid., Dec. 24, 1898.

of power used with the forceps; *AE* is the line of traction with the axis-tractor. It is obvious that by using the handle of the forceps as a guide, the whole of the force expended may be directed in the true axis, *AB*; whereas, traction with forceps alone is along the line *AD*, and is necessarily expended to a considerable degree on the anterior brim.

Symphysiotomy.—Zweifel[1] has performed symphysiotomy 34 times, without a death; and G. Abel has followed 25 symphysiotomies at the Leipsic clinic—on 1 patient performed twice—for an average of 3½ years, and reports unexpectedly favorable results. All the women were fully restored to their former working capacity. Pregnancy has occurred in 14, and proceeded without accident. In 7 cases, all the children born since (11) have been delivered spontaneously, showing that symphysiotomy evidently produces conditions favorable to future deliveries. In a third of the cases the symphysis was distinctly enlarged with a layer of scar-tissue. There was no excessive stretching of the scar *in partu*; nor interference with walking later, nor with the solidity of the pelvis. The more contracted the pelvis the longer the convalescence after symphysiotomy, which varied from 5 weeks to 10 months before the ability to walk normally was fully restored. [Contrast this with the short convalescence after Cesarean section.] In every case the symphysis retained a mobility of 0.5 to 0.75 cm., which proved no inconvenience, and had no effect upon the rapidity of the recovery of the working capacity, which depends more upon the smooth healing of the soft parts. In the less successful cases there was cicatricial contraction of the anterior vaginal wall, liable to interfere with the emission of urine and produce retroflexio uteri and pain. Zweifel claims that the results of symphysiotomy are bad if it is found necessary to terminate the birth artificially. Bar[2] says that symphysiotomy is often accompanied by urinary troubles and favors the development of uterine prolapse. W. P. Carr[3] says that the danger of infection may be lessened by not extending the incision as low as it is usually made. Also, the bone should be thoroughly separated from the tissues behind and below, great care being taken to keep next to the periosteum. It is also important that this separation extend from ¾ to 1 in. on each side of the median line, to insure the safety of bloodvessels and urethra when the bones are separated. He recommends wiring the bones with silver wires. Charles[4] has compared the operations of Cesarean section and symphysiotomy, and concludes that the latter is more dangerous than the former.

Cesarean Section.—H. J. Boldt[5] gives the following absolute indication for total extirpation of the uterus: 1. All women who have a living child *in utero* at term or nearly so, and in whom the pelvic diameters are too small for the delivery of a living child *per vias naturales*. 2. When the child *in utero* is dead and infection of the organ has taken place. 3. In cicatricial atresia of the vagina to such an extent as to prevent delivery through the normal route. 4. When a neoplasm is present in the column of the uterus, preventing the passage of a living child with safety to the mother. 5. In such cases of rupture of the uterus in which an abdominal section is indicated and suture of the uterine wound is

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[1] Münch. med. Woch., Feb. 7, 1899.

[2] Gaz. hebdom. de méd. et de Chir., May 25, 1899.

[3] Am. Jour. Obst., Oct., 1898.

[4] L'Obst., Nov. 15, 1898.

[5] Med. News, July 9, 1898.

PLATE I.

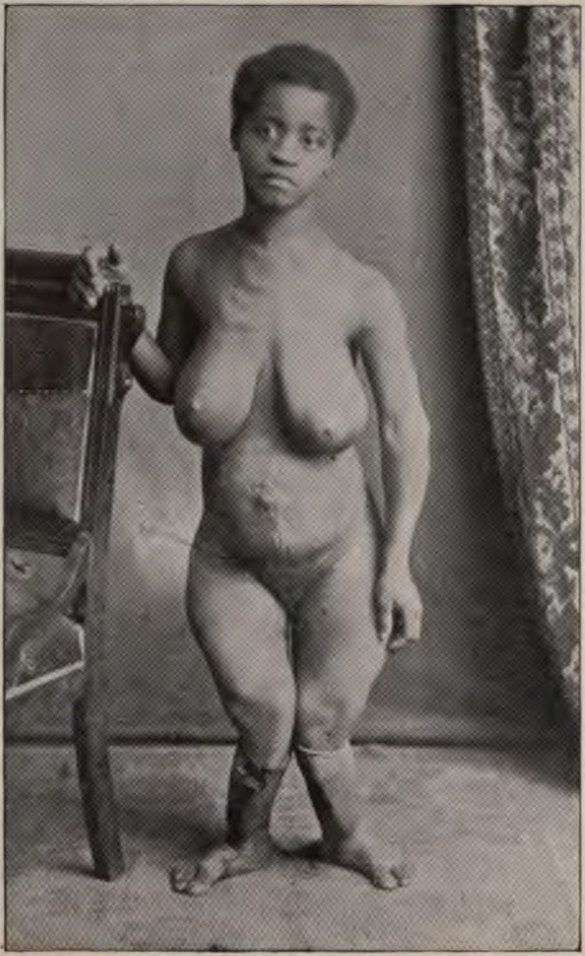

FIG. 1.—Cesarean section in rachitic dwarf; front view.

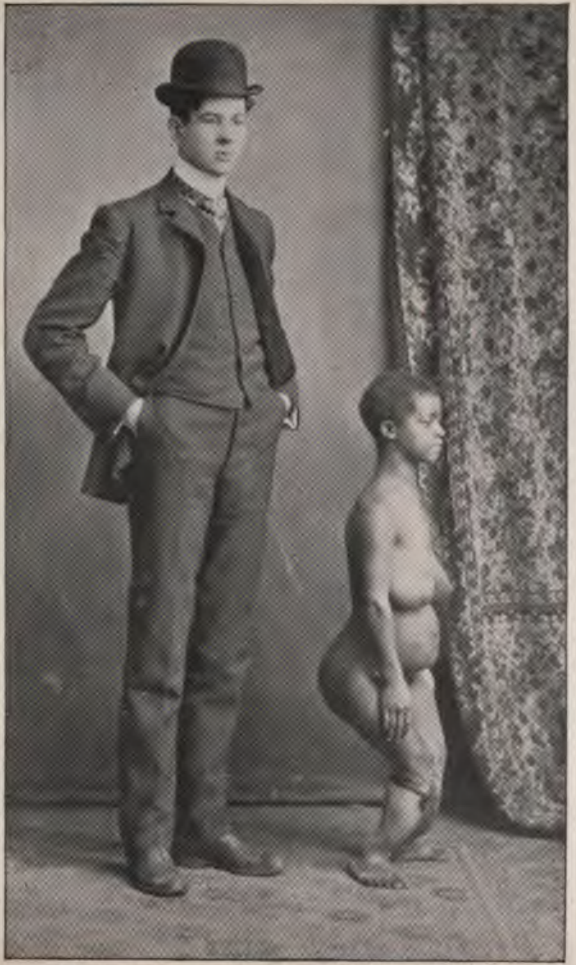

FIG. 2.—Cesarean section in rachitic dwarf; side view.

(Buckmaster, Phila. Med. Jour., March 11, 1899.)

unsafe. 6. In some cases of hemorrhage from the uterus subsequent to Cesarean section. Marcy [1] suggests making the incision in Cesarean section as nearly as possible over the center of the placenta. The intra-uterine pressure will then force the placenta through the incision with scarcely any loss of blood and with almost absence of fetal asphyxia. Leopold and Haake [2] find that gonorrheal infection has a very unfavorable influence upon the subsequent course of Cesarean section; and when this disease is present they advise the Porro operation or craniotomy. Nephritis and high-grade anemia they regard as contraindications to the operation. [Several recent observers have expressed themselves as highly satisfied with Fritsch's *modus operandi*. The advantages claimed appear to be: Easy extraction of the child; reduction of hemorrhage to a minimum, as the wound runs parallel to the main vessels; good control of bleeding after suture, as the stitches are passed at right angles to the main vessels; reduced risk of subsequent hernia, as the abdominal wound can be made higher up in the abdominal wall than would otherwise be possible; and easy prevention of the entrance of blood and liquor amnii into the abdominal cavity.] C. Jewett [3] believes Fritsch's incision can scarcely have any advantage over the longitudinal, provided the cut is confined to the upper or fundal portion of the uterus. Transverse section does not necessarily avoid the bloodvessels. Incision strictly in the median line would probably result in no more hemorrhage. Moreover, the vessels are easily controlled by manual compression or by the use of the cervical constrictor. All the advantages claimed for the transverse incision are realized in the longitudinal by limiting the uterine wound to the thickened upper portion of the uterus. A. Dührssen [4] recommends vaginal Cesarean section in place of the usual operation. It consists essentially in a sagittal splitting of the anterior and posterior vaginal culsdesac, and separation of the bladder from the uterus, and splitting of the uterine wall as far as the lower uterine segment extends. The indications are abnormalities of the cervix and lower uterine segments which render dilatation impossible or difficult [carcinoma, rigidity, stenosis, sacculation]: a dangerous condition of the mother, rendering necessary speedy delivery; and dangerous conditions that will lead to speedy death. Sciffart [5] favors this operation; but believes it should not be immediately followed by total extirpation if the patient is not in a good condition. With a small child and other conditions favoring, he would complete the operation at a single sitting. A. H. Buckmaster [6] reports a successful celiohysterectomy for the removal of a child from a flattened rachitic pelvis, in a colored woman 3 ft. 10 in. high (see Plate 1).

THE PATHOLOGY OF THE PUERPERIUM.

Puerperal Sepsis.—Etiology and Diagnosis.—Olshausen [7] calls attention to the necessity for a rational definition of puerperal fever and a clear understanding of the difference between infection and intoxication. By infection, he understands the presence and circulation of bacteria in the organs and fluids of circulation in the patient's body. By intoxication is meant absorption from the birth-canal of the products of bacteria contained therein. While it is almost impossible to draw a sharp distinction in the matter, it is important to understand as clearly as possible the two conditions. He urges that only those diseases caused by septic microorganisms shall be included under the term "puerperal fever." Mundé[1] says: "Puerperal fever means the introduction into the system of a parturient or puerperal woman, through her genital tract, of certain pathogenic germs—the staphylococci and the streptococci—which, under favorable conditions, produce more or less dangerous, and even fatal, results." He doubts if true puerperal septicemia ever results from infection with the colon-bacillus. S. Marx[2] says a positive diagnosis of puerperal sepsis can be made only by finding the streptococci in the blood; and this examination should never be omitted. Malaria in the puerperium, he believes, is extremely rare, and can almost be excluded unless it occurs 10 days or more after delivery in a woman who had had previous typical attacks of malaria, and in whom the plasmodium was found in the blood. Late septic infection is rare, and is nearly always a continuation or an exacerbation of an early infection that had escaped notice. A. H. Burr[3] says that from 10% to 30% of women become gonorrheic, and he claims that gonorrhea is a principal factor in the production of puerperal fever. Schenck[4] emphasizes the importance of the *Bacterium coli commune* as a cause of puerperal sepsis. It may act either by direct introduction from the anus into the vagina, or it may wander through a partially paralyzed intestine into the peritoneal cavity, and there set up a condition of profound toxemia.

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[1] N. Y. Med. Jour., July 16, 1898.
[2] Arch. f. Gynäk., Band 56., Heft 1.
[3] Brooklyn Med. Jour., Sept., 1898.
[4] Berlin. klin. Woch., Feb. 6, 1899.
[5] Centralbl. f. Gynäk., Feb. 5, 1898.
[6] Phila. Med. Jour., Mar. 11, 1899.
[7] Centralbl. f. Gynäk., No. 1, 1899.

Puerperal Pulmonary Thrombosis.—According to W. C. Mainwaring,[5] the conditions during the puerperium are especially those that would favor thrombosis in the vessels—viz., a stagnated or arrested circulation, and an alteration in the character of the blood, leading to an increase in it of fibrinogenous constituents. Stagnation of the blood is favored by the recumbent position the woman assumes after labor, and by the weakness of the heart's action, due to the exhaustion produced by the labor-pains. There are 2 distinct classes of cases. In the first, the symptoms arise early in the puerperium, generally before the fourteenth day, and often on the second or third day before, often coincident with those cases of peripheral venous thrombosis. The second class of cases occurs later, generally after the nineteenth day, and are undoubted cases of embolism. The symptoms and physical signs of the 2 conditions are essentially the same. [It is now known that sepsis is the origin of all these cases of puerperal thrombosis, irrespective of the predisposing causes mentioned above.]

Prophylaxis and Treatment of Puerperal Sepsis.—G. E. Shoemaker[6] concisely summarizes the matter when he remarks that 4 simple things, if universally and carefully used today, would very nearly banish puerperal sepsis: 1. The hand scrubbing-brush. 2. The mercuric chlorid, or equivalent, solution for hands and external genitals.

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[1] Med. Rec., Apr. 8, 1899.
[2] Ibid.
[3] Jour. Am. Med. Assoc., Sept. 3, 1898.
[4] Arch. f. Gynäk., Band 55, Heft 2.
[5] Austral. Med. Gaz., Feb. 20, 1899.
[6] Therap. Gaz., Dec. 15, 1898.

3. The baked napkins. 4. The clean suit. H. C. Coe[1] adds that prophylaxis in obstetrics is nothing more than surgical asepsis. Every obstetric case should be an aseptic operation. This, however, is often very difficult to carry out in private practice. As regards *general treatment*, H. M. Painter[2] does not see why a woman suffering from puerperal sepsis should not be allowed as much nutritious food as her stomach can take care of. The presence of fever is not sufficient ground for withholding food. He believes in pushing the alimentation as far as possible in cases of puerperal infection. He especially favors beef-preparations containing a fair quantity of alcohol. Atherton[3] favors the use of salicin, in 3-gr. doses every 3 hours, as a substitute for quinin. [It is just as well to leave good enough alone; quinin has proved its value in these cases.] Irrigation of the uterine cavity still gains in favor in the management of these cases. H. Manseau[4] urges continued irrigation of the uterine cavity after thorough curettage. The toxins are thus washed away as fast as they are formed. Simple sterile water is best for this purpose. Under the use of the irrigation, involution progresses rapidly. J. N. Upshur[5] first irrigates the cavity with normal salt solution, and then swabs out the uterus with hydrogen dioxid. Fresh applications are made until cessation of foaming gives positive evidence that the uterine cavity has been thoroughly cleansed. Credé[6] recommends a mass of ointment, containing from 15 to 45 gr. of chemically pure metallic silver, rubbed into the cleansed skin for from 15 to 30 minutes in septic cases due to the staphylococci and streptococci. Marx[7] believes that the silver treatment is worthy of trial. The ointment causes no irritation, but sometimes produces a peculiar tingling sensation in parts adjacent to the site of the inunction.

[As was prophesied last year, the serum-treatment of puerperal sepsis has failed to meet the expectations of those who were enthusiastic in its support. The results have been far from gratifying, and the final blow was struck by the adverse report of the committee appointed by the American Gynecologic Society.[8]] This report was based upon a critical study of the literature of the subject and the personal experience of members of the committee. In 354 cases they found 20.6% of deaths; far from a good showing, and not calculated to encourage further use. It must be remembered that these reports are based upon the most severe cases, since the serum is generally a *dernier ressort.* The serum is frequently useless, or even harmful, to the patient; and it is also said to deteriorate rapidly. In the cases in which the streptococci were positively demonstrated the mortality was 33%. It is also evident, from the experience of the observers, that the number of serums that may be prepared is only limited by the number of varieties of the streptococcus that may exist. Personal experience of the committee has shown that the mortality of streptococcus-endometritis, if not interfered with, is less than 5%; and that such cases tend to recover if nature's work is not undone by too energetic interference locally. Pratt[9] suggests that in many cases too small an initial dose has been employed. In grave cases Cox gives 30 cc., to be followed by doses of 10 to 20 cc. every 12 or 24 hours. Everhart[1] strongly recommends subcutaneous injections of a 0.9% solution of table-salt in puerperal sepsis. This treatment proves specially useful in cases in which there is more or less constant vomiting. That complication involves great loss of fluid from the tissues and circulation, without corresponding elimination of septic elements. A liter should be injected at one sitting. The injection acts as a diuretic, and washes out the bacteria and their toxins.

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[1] Med. Rec., Apr. 8, 1899.
[2] Ibid.
[3] Ann. Gyn. and Pediat., Feb., 1899.
[4] Montreal Med. Jour., July, 1898.
[5] Va. Med. Semi-monthly, Nov. 11, 1898.
[6] Centralbl. f. Gynäk., July 23, 1898.
[7] Med. Rec., Feb. 11, 1899.
[8] Phila. Med. Jour., June 3, 1899.
[9] Boston M. and S. Jour., Feb. 2, 1899.

[The use of the sharp curet in puerperal sepsis is also falling into disfavor.] Mundé[2] remarks that the curetting of a septic endometrium removes tissues that have already undergone inflammatory obliteration of their absorbent vessels, and so does more harm than good, by laying open fresh channels for infection. H. J. Boldt[3] says the curet should not be used in ordinary cases of septic endometritis. [The early use of the sharp curet in cases in which the trouble is due to retained placental debris is most beneficial. The foregoing objection pertains merely to later cases, in which there is involvement of the uterine wall and the adnexa.] According to Reynolds,[4] curetting is best done when the local symptoms are important and there is little noticeable constitutional disturbance, in the first 24 hours, while the infection is still presumably local, particularly if the lochia are foul and the uterus large and boggy. It generally does harm after the first 24 hours; and always in cases in which nature has held out a long time against the local infection and the sepsis has proceeded to distant points.

Postpartum Hemorrhage.—Arndt[5] proposes a new treatment for atonic uterine hemorrhage. It consists in seizing the flaccid lips of the os with one or two bullet-forceps, and forcibly but slowly drawing the uterus downward as far as possible. This is repeated three or four times, until all hemorrhage has ceased and the uterus is firmly contracted. This mechanical device acts by rendering the uterus anemic, and by stimulating the organ to contract, thereby preventing further relaxation, partly by irritation of the automatic ganglia in the middle layer of the uterus, and partly by stretching the uterine nerves in the broad ligament. Dickinson[6] advocates the lifting up of the uterus against the lumbar, or even the dorsal, spinal column with one hand, while the other, placed below it, grasps and compresses and rolls the lower part of the uterus, including the cervix. In this manner the cavity of the uterus is obliterated and the walls pressed together, as cannot be done by methods that force the body of the uterus down into the pelvis, either with or without counterpressure made through the vagina. Bastian[7] introduces a Cusco bivalve speculum into the vagina and opens the blades as widely as possible, thus exposing the cervix. Sterilized or iodoform gauze is then introduced and pressed firmly against the cervix and into the culdesac. In this way the uterus is raised into the abdominal cavity a considerable distance; the plugging is continued methodically until the vulva is reached. The speculum is left in for 12, and the whole plug for 24, hours. The author claims that

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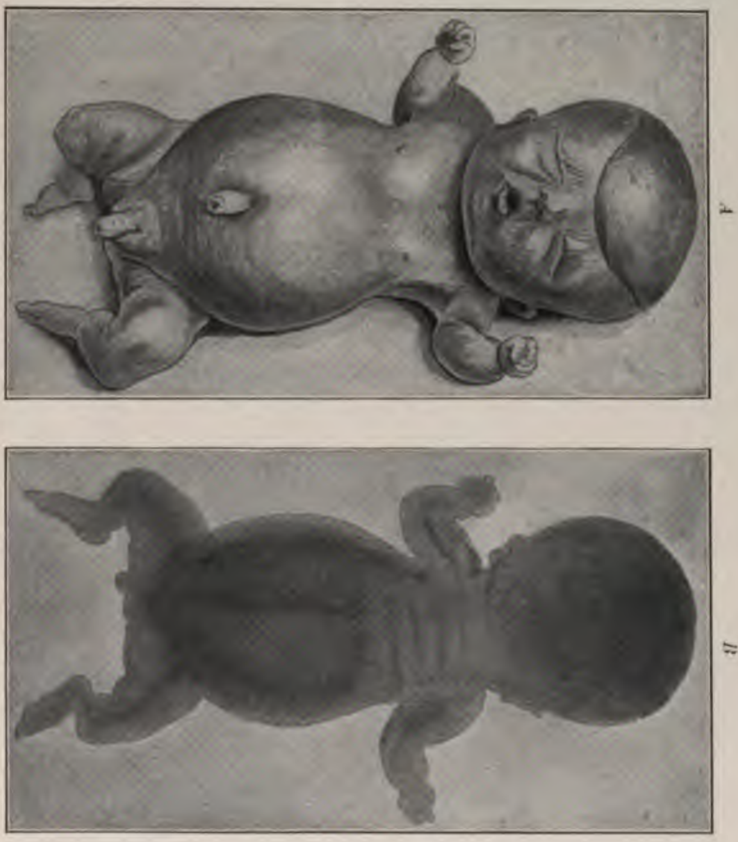
[1] Centralbl. f. Gynäk., No. 41, 1898.
[2] Med. News, July 9, 1898.
[3] Med. Rec., Apr. 8, 1899.
[4] Phila. Med. Jour., June 3, 1899.
[5] Münch. med. Woch., No. 43, 1898.
[6] Brooklyn Med. Jour., Mar., 1899.
[7] Rev. Méd. de la Suisse Rom., Jan. 20, 1899.

PLATE 2.



A, stillborn child affected with achondroplasia; *B*, radiogram of the same case (Flemming, Bristol Med.-Chir. Jour., March, 1899).

the control of hemorrhage by this method is most effective, no matter what its source.

PHYSIOLOGY AND PATHOLOGY OF THE NEWBORN.

Sagittal Fontanel in the Heads of Infants at Birth.—Lea[1] states that the sagittal or parietal fontanel is present in 4.4% of infants at birth. It is usually bilateral and lozenge-shaped (76%); more rarely it is unilateral and triangular (24%). It closes within the first 2 months of life; but at times may remain open for at least 8 months after birth, and possibly longer. It is frequently associated with deficient ossification of the posterior parts of the parietal bones. Its presence does not appear to be associated with any constitutional condition of the infant or mother. During delivery it may lead to error or confusion in diagnosing the presentation. It is probably of some use in facilitating the moulding of the head in vertex presentation. It may simulate fracture or injury of the skull.

Ophthalmia Neonatorum.—Stephenson[2] calls attention to prenatal infection of the eyes; but in most cases he thinks infection occurs soon after birth by opening or rubbing the child's eyes. Gonococci are the cause in two-thirds of the cases; but other germs may be present. He advises silver nitrate, 10 gr. to 1 oz. of distilled water, twice daily; it is unnecessary to remove the excess with salt solution. To prevent adhesions of the lids, an antiseptic ointment (Unna's) should be used. This is 3% hydrogen dioxid with lanolin and vaselin. Ten per cent. of children so affected lose one or both eyes. The prognosis is good if the cornea is clear when the child is first submitted to treatment. Cheney[3] recommends protargol in the treatment of the ophthalmia. He claims that it produces almost no irritation, is not precipitated by albumins nor salt solution, and does not stain the skin, and apparently not the conjunctiva, after prolonged use. A 2% or 4% solution is employed, sometimes with a brush, sometimes with absorbent cotton on a probe; and occasionally a quarter of a dropperful was emptied over the conjunctiva. The main advantage to be derived from its use is its freedom from irritability.

Achondroplasia.—C. E. S. Flemming[4] defines achondroplasia, or fetal rickets, as a disease of intrauterine life, characterized by great shortness of the limbs, which are bent and markedly out of proportion to a fully developed trunk, and an enlarged abdomen (Plate 2). The head is large, and there is considerable thickening of the skin of the whole body. The affection does not show itself in the trunk or the head, except at the base of the skull, which is contracted, and has the bones prematurely united. Some cases are, however, hydrocephalic. It is a disease that comes on and completes its evolution in the earlier months of pregnancy, so that when the child is born the lesions are cured and the initial disorders escape observation. One authority, however, says that the disease may be active until the twenty-sixth week. The bones, when formed, are very hard, and the epiphyses are greatly enlarged. The child presents a cretinoid appearance.

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[1] Tr. Obst. Soc. of London, vol. xl., part 3.

[2] Med. Press and Circ., Nos. 21 and 22, 1898.

[3] Boston M. and S. Jour., Aug. 25, 1898.

[4] Bristol Med.-Chir. Jour., Mar., 1899.

GYNECOLOGY.

BY J. MONTGOMERY BALDY, M. D., AND W. A. NEWMAN DORLAND, M. D.,

OF PHILADELPHIA.

PRELIMINARY AND GENERAL CONSIDERATIONS.

Neuroses and Neurasthenia in Women.—[As usual, this intricate problem in gynecology has commanded a large share of the attention of gynecologists during the past year.] Noteworthy among the contributions are the papers of H. G. Wetherill,[1] J. Russell,[2] E. Hall,[3] J. Eastman,[4] J. M. Baldy,[5] Doléris,[6] and A. Elzholz.[7] Wetherill discusses the relations of certain neuroses to the pelvic and genital diseases of women, and presents the following general conclusions: 1. Nervous symptoms or actual disease of the nervous system may be produced in a reflex way from the pelvic or genital diseases of man or woman. 2. Reflected or referred pains, usually neuralgic in type, may also be so produced. 3. The observations of Head and Mackenzie demonstrate the above, and teach that referred pains are not always produced by disease of the organ which they overlie, but that they may be due to disease of some organ having its sympathetic nerve-supply from the same segment of the spinal cord, or even be due to a disease of some allied organ elsewhere in the body. Thus, the so-called ovarian pain may be produced from a disease of the opposite ovary; it may be due to disease of other pelvic viscera (rectum, uterus, bladder); or it may be caused by other pelvic conditions, induced through sexual perversion, though they may be accompanied by no gross lesions or macroscopic manifestations. Pelvic and genital hyperemia and hyperesthesia are usually found in conjunction with the other phases of this malady; and the flushing face and other evidences of vasomotor disturbance at least suggest a genital origin. 4. Pelvic and genital diseases—organic and functional—must, whenever possible, be cured as a part of a scheme of rational treatment of those patients presenting the nervous manifestations of such lesions. 5. Timely and judicious surgical work will, in selected cases, do much to cure the nervous symptoms arising from actual pelvic disease or dyscrasia. A late operation may fail, as in epilepsy; injudicious surgical work always does more harm than good; and it is only those cases that have been chosen with great care that should be operated upon at all. 6. Chronic hysteric patients, with an old and established pain-habit, are the least likely to be permanently benefited by surgical operations; and operations must be done upon such individuals only after careful consideration and consultation with a neurologist, and only for evident and palpable local disease, the cure or relief of which is believed to be positively essential to the health and wellbeing of the patient. 7. The surgical treatment of pelvic inflammation or infection, subinvolution and uterine displacements or prolapses of the pelvic viscera, and the old lacerations accompanying them in childbearing women, is most promising and satisfactory when a cure of their nervous sequels is sought. Such cases yield the best results attainable, both local and general, immediate and remote. 8. The elimination of the peripheral cause is but one step in the treatment; the effect remains to be treated, and must be intelligently and persistently treated until cured—if, indeed, cure is yet possible. Surgery may remove the cause; but surgery alone is in many instances inadequate for the cure of the effect. 9. The local and original cause can only be cured by treatment prescribed for and directed to the local disease. This treatment must often be surgical. 10. Rest, massage, electricity, hypernutrition, moral suasion, and suggestion are inadequate for the cure of the local cause, as is surgery for the cure of the effect. It is quite as reasonable to expect them to cure abscess or tumor of the brain, and their symptoms, as to expect them to cure the lesions and symptoms of like pathologic processes in the pelvis. From his large experience in this line of work, Baldy has been impressed with certain undeniable facts, which he formulates thus: 1. Hysteria is often seen in individuals in whom the anatomic and functional condition of the sexual organs is wholly normal. 2. On the other hand, all sorts of diseases of the sexual organs may occur without the presence of hysteria. 3. Cases of hysteria in which cures have been effected through local gynecologic treatment alone are rare. 4. There are women who have never been hysteric in whom hysteria has developed after gynecologic treatment, and after their attention has been drawn to the condition of their sexual organs. 5. Many women are cured in whom the sexual organs remain unchanged. 6. Chronic neurasthenia almost invariably produces a train of symptoms referable to the pelvic organs. In view of all this, we are forced to regard cases of hysteria or neurasthenia as rare which are dependent exclusively upon abnormalities of the sexual organs. Baldy believes that the trend of opinion is in favor of nonsurgical interference in marked neurasthenics and hysteroepileptics, as well as in those chronically insane. As to the etiology of the nervous affections of women, Eastman argues the importance of careful examination of the appendix vermiformis and of the coccyx, as well as of the superficial nerves of the vulva. He also believes that efforts to prevent conception are responsible for many of these cases. H. N. Moyer[1] states that, taking all factors into consideration, operations upon the female pelvic organs are not attended with more nervous disturbance, such as neurasthenia or insanity, than are operations in general surgery. The character of the mental disturbance that may follow operations is substantially the same whether the operations are done upon the pelvic organs or upon other parts of the body. He does not believe that there is any essential difference between the nervous phenomena of the artificial or induced menopause and the nervous disturbances that accompany the menopause at the ordinary time of life. Hall believes that every asylum superintendent should be a skilled gynecologist, able to perform any operation that might benefit the insane patients. He regards disease of the female sexual organs a factor of no small importance in the development of insanity; and a certain proportion of these women will be cured or relieved by an appropriate surgical intervention. Dercum[1] asserts that there is no necessary relation between the great neuroses and pelvic disease, even though the two affections often coexist. Pelvic symptoms are merely recognized more readily by a neurasthenic patient, because in neurasthenia there is increased reaction to local impressions, nervous weakness and nervous irritability going hand in hand. In hysteria the patient is exceedingly impressionable, and easily accepts the suggestions or autosuggestions of pelvic disease, especially as inguinodynia is so common a symptom of the hysteric state. The pain-areas of hysteria bear no relation to disease of the deeper structures. He concludes that nervous symptoms directly due to pelvic disease are comparatively rare, and are mostly local; and these alone have any surgical significance. H. Peterson[2] says there is no evidence whatever to support the opinion that insanity is ever due to a mere reflex influence from pelvic disease. In insanity the two great etiologic factors are hereditary instability and some physical or moral stress directly affecting the nervous system. There has never been brought forward any evidence whatever to show that either epilepsy or chorea can be induced by disease of the female organs. He takes the stand, therefore, that the field of gynecologists in the domain of nervous diseases is comparatively restricted and unimportant, and protests against the still-prevailing tendency to enlarge further the field of operative gynecology by unjustifiable and unscientific surgical interference in cases of nervous and mental disease. The gynecologist should, however, treat any serious disease of the pelvic organs that may be present in any case of nervous or mental disorder, just as he would in a similar affection in an otherwise sound and sane woman. B. Sherwood-Dunn[3] takes the opposite view of the subject, and states that in **operating for diseased conditions** in the pelvis one does not expect to remove the symptoms of the neurosis, but only the symptoms properly belonging to the pelvic disease itself. Disease of the pelvic organs and affections of the nervous system are so frequently concomitant and interdependent that the neurologist is, by far, less likely to give due consideration to the pelvic troubles than the gynecologist to the neuroses, because of his lack of practice and natural repugnance to propose and pursue vaginal examinations upon the patients that come to him. There is perfect truth in the claim of neurologists that ill-health in woman is frequently the cause of uterine troubles; but it is even more true that the various diseases of the uterus and its adnexa are the exciting cause of the ill-health that frequently induces morbid changes in her central nervous system. The exact knowledge that exists of their physiologic action compels a belief that these organs form the most prominent links in the chain of woman's health of both mind and body. It is unreasonable and unscientific to style a woman neurotic, hysteric, hypochondriac, and treat her accordingly, ignoring, the while, local disease of her pelvic viscera, which aggravates and accentuates, and in many instances is the exciting cause of these neuroses. All gynecologists have seen cases with gross pelvic lesions and markedly grave hysteric symptoms dating from or after the commencement of the pelvic lesions, and which at first sight seemed the result of pelvic disease; and it is only logical to think that the removal of the evident source of irritation would correct the nervous trouble.

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[1] Phila. Med. Jour., Mar. 18, 1899.

[2] Canad. Pract., Oct., 1898.

[3] Med. Sentinel, Apr., 1899.

[4] Ibid., Sept. 10, 1898.

[5] Phila. Med. Jour., July 16, 1898.

[6] Jour. de Méd. de Paris, Sept. 4, 1898.

[7] Wien. klin. Woch., Nov. 29, 1898.

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[1] Jour. Am. Med. Assoc., Sept. 10, 1898.

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[1] Denver Med. Times, Oct. 1, 1898. [2] Jour. Am. Med. Assoc., Mar. 25, 1899.
[3] Ann. of Gyn. and Pediat., Jan., 1899.

An **innovation** in the line of treatment has been suggested by R. Tambroni,[1] who has experimented with **ovarian substance** upon 7 insane patients (2 men and 5 women). The substance was exhibited in a fresh state, both by the mouth and by subcutaneous injection. The physiologic effect of the medication was manifested in both sexes by an improvement in the appetite, augmentation of the frequency of the pulse and respiratory movements, and also by elevation of temperature. A young woman upon whom ovariectomy had been performed, and a young hysteroepileptic man, were observed to grow worse under the ovarian treatment. On the contrary, in the other 4 women, who all suffered from amenorrhea, menstruation was reestablished and the psychic troubles improved. Ovarian opotherapy seems, therefore, to be of service in mental affections complicated with menstrual troubles.

The Relative Value of the Male and Female Reproductive Organs in Their Relation to Operation.—R. Clement Lucas[2] arrives, as the result of a most exhaustive and interesting paper on this subject, at the following conclusions: 1. The male and female reproductive organs, originally allied in development, exert a remarkable influence on the development of the individual, apart from their procreative function. 2. Maturity having been attained, the procreative function outweighs in importance the nutritive influence exerted on the various tissues of the body through these organs. 3. From a national, as well as a domestic, standpoint, the procreative function of woman is her richest dowry; so that in a young woman, whenever possible, it should be preserved to her by conservation of an active ovary. 4. With the approach of middle life the ovaries decrease in value, and may be more freely sacrificed to prolong the life of the individual. 5. Both ovaries and testes exert throughout life a certain influence on associated organs, and perhaps to a less extent on all the organs of the body. 6. This influence, formerly attributed to reflex nerve action, by many is now thought to be due to an internal secretion from these organs. 7. The removal of normal ovaries (Battey's operation) has failed as a cure for neuroses; and cannot be too strongly condemned for such cases, especially in young subjects. 8. The same operation for fibromyomas of the uterus has often proved of great service in reducing the tumors by hastening the menopause. 9. Kelly, impressed by the importance of the internal secretion theory, has lately recommended conservation of one or both ovaries when the uterus is removed, which is a reaction into somersault on Battey's operation. 10. Battey's operation has lately been suggested by Beatson for the cure of inoperable cases of cancer. Remarkable shrinking of the tumors of the breast and glands has been noticed to follow the operation in women who had not reached the menopause; but complete cure seems never to have been obtained.

The Bicycle in Gynecology.—Leriche[3] is disposed not to forbid the use of the cycle to every woman suffering from a uterine affection, whatever its nature may be. He has observed a patient who, by cycling exercise, was cured of menorrhagia of long standing—greatly to his surprise at the time. He believes that in properly selected cases and with prudent use the bicycle may be made effective as a therapeutic agent, and may be made to replace the gymnastic treatments of Stapfer and Brandt. Observations by Bianchi and Regnault have also shown in racing cyclists a more or less persistent elevation of the viscera; and the author is disposed to think that this circumstance may be made available in certain cases of abdominal ptosis. Both chronic diarrhea and constipation may be relieved or cured; and the bicycle is particularly indicated in all purely neurotic states. At the same time, the use of the cycle must be prudent, moderate, and controlled; and it still remains to define its exact indications and mode of application. If carried to excess, cycling may easily do more harm than good; and it may lead to serious results in unsuitable cases. Foremost among these are affections of the adnexa. The author has seen grave hemorrhage result from overexertion while cycling in a patient suffering from chronic metritis and salpingitis. Ballantyne[1] remarks that most medical men, whether cyclists or not, will agree with E. B. Turner, when he asserts that the following conditions form absolute contraindications to cycling: Pregnancy, menstruation, the 3 months following parturition, and before the age of 7 years. Further, the morbid states of the heart, lungs, kidneys, and brain which contraindicate other forms of muscular exercise will also preclude cycling. Most writers are agreed that acute pelvic inflammation, recent displacements of the pelvic organs, fibromyomas, ovarian cysts, and hematoceles form distinct contraindications to cycling; but it may be well here to give the list of gynecologic troubles owing to which Fauquez has found that the exercise must be abandoned. It is as follows: Amenorrhea, in connection with phthisis, cancer, diabetes, and organic diseases of the heart or kidneys; metrorrhagia or menorrhagia; inflammation of the uterus and its appendages; acute metritis, painful chronic metritis, hemorrhagic or purulent endometritis, salpingitis, ovaritis, salpingoovaritis, perimetritis, pelvic cellulitis, and pelvic abscess; pelvic hematocele, and uterine fibroids during the hemorrhagic period; and in vulvitis and vaginitis before complete cure has been effected. As to minor degrees of prolapse, chronic pelvic inflammation, subinvolution, and uterine retroversions and anteversions, medical opinion is not yet fully formed. Here the gynecologist should make a complete survey of each individual case, and form his own opinion. Women wearing a well-fitting pessary are not debarred from cycling. Women of advancing years, especially if near the menopause, should be extremely careful with regard to this exercise. Josephine Calahan[2] states that one of the chief advantages of bicycle-exercise for women is the necessity of having the dress loose, so as to admit of perfect freedom of movement for all the muscles of the body. She thinks that bicycling is the best of all stimulants for a sluggish liver and an inactive skin, and an ideal remedy for a capricious or indifferent appetite. It is also one of the very best remedies for insomnia; and in nervous derangements not dependent upon any real lesion, but rather on undue mental strain or on an inactive, aimless life, systematic exercise with the bicycle will be found to meet the conditions admirably. Much, however, depends on the style in which the bicycle is ridden; and women should be well taught. Exaggerated leaning forward is dangerous.

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[1] Pacific Med. Jour., Aug., 1898.

[2] Clinical Rev., Nov. 16, 1898.

[3] Progrès méd., No. 42, 1898.

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[1] Internat. Med. Jour., June, 1898.

[2] Occidental Med. Times, Apr., 1898.

Gonorrhea in Women.—O. Bodenstein[1] claims that the chief seat of chronic gonorrheal kolpitis is in the posterior vaginal fornix; and adds, furthermore, that this, and not the urethra, is almost invariably involved. Many authors have considered this to be the starting-point of the process. He quotes the following clinical criterions, as taught by Sänger, for the establishment of the diagnosis of chronic gonococcus-infection: 1. The history may reveal: (*a*) Ophthalmoblennorrhea of 1 or more children; (*b*) former ardor urinæ; (*c*) gonorrhea in the husband. 2. Disease of Bartholin's glands, characterized particularly by a petechial purplish-red area about the orifice of the ducts; especially suggestive is the discovery of the **maculæ gonorrhœicæ** on both sides, together with reddening of the urethral orifice. 3. Fistula, abscesses, and cysts of the Bartholinian glands are conclusive evidence of existing gonorrhea. 4. Spitzcondylomas. 5. Dark-red spots upon a yellowish-white streaked base upon the vulva. 6. Erosions of the external os of the cervix. 7. The local application of a 50 % solution of zinc chlorid will cause the granules in the vaginal mucous membrane to spring into relief in chronic gonorrhea. 8. Involvement of the urethra.

According to J. R. Eastman,[2] the diagnosis of acute gonorrhea in women is comparatively easy, even without the microscope. What with a history of impure coitus; free purulent secretion from the vulva, vagina, and urethra; intertrigo; burning on micturition and vesical tenesmus, the diagnosis is not far to seek. Upon inspection, one usually detects a discharge of tenacious pus; or greenish or yellowish streaks upon the linen may alone be in evidence. Erosion may be present upon the skin, upon the labia majora, or in the inguinal and gluteal folds. The labia minora, the clitoris and its prepuce, and the hymen, if present, are red and swollen. The meatus urinarius is found to be congested and ectopic, its normal pink color changed to a deep red. The mouths of the ducts of the Bartholinian vulvovaginal glands are deeper in color, gaping, and tender. They discharge, instead of their normal glycerin-like secretion, pus-laden mucus. A small area of mucosa immediately about these openings exhibits a purplish-red nuance. The surface of the vagina proper presents no great change, the adult vaginal mucosa being practically uninfluenced by the presence of the gonococcus; not for the reason generally presented, namely, that the germ cannot exist upon flat epithelium, but more probably because, as Döderlein has pointed out, of an acid environment and the presence of the vaginal bacillus. L. G. Baldwin[3] says that one of the **first symptoms** of gonorrhea noticed in the female is general lassitude, with loss of appetite and absence of the feeling of well-being of a healthy person. This will soon be followed by darting pains through the pelvis, back, thighs, and groins; and then the classical symptoms will manifest themselves.

In the **treatment** of gonorrhea, W. Anderson[4] states that the first object should be to destroy the pathogenic germ. For this purpose, any of the following germicides are used: Potassium permanganate, 1 : 10,000 to 1 : 1000; chinosol, 1 : 10,000 to 1 : 1000; bichlorid of mercury, 1 : 10,000 to 1 : 1000; hydrogen peroxid, 1 : 4 or 1 : 2; argentum, 1 : 1000 to 1 : 100; silver nitrate, 1 : 100 to 1 : 10; carbolic acid, 1 : 100 to 1 : 20; lysol, 1 : 100 to 1 : 20; argonin, 1 : 50 to 1 : 10; creolin, 1 : 100 to 1 : 50; resorcin, 1 : 100 to 1 : 50; creosote, 1 : 100 to 1 : 50; zinc chlorid, 1 : 10; saturated solution of salicylic acid in alcohol, 1 : 10; lead acetate, 1 : 100 to 1 : 50; zinc sulphate, 1 : 100 to 1 : 10; iodoform, powder or ointment; chloral, 1 : 50 to 1 : 10; ichthyol, 1 : 50 to 1 : 10; thymol, 1 : 1000 to 1 : 100; actol, 1 : 1000 to 1 : 100; itrol, 1 : 1000 to 1 : 100; cresol, 1 : 1000 to 1 : 100; oxycyanatum, 1 : 1000 to 1 : 500; formalin, 1 : 1000 to 1 : 50; chlorin-water, 1 : 100 to 1 : 50; turpentine, 1 : 100 to 1 : 20; iodin, 1 : 100 to 1 : 50; Labarraque's solution, 1 : 50 to 1 : 10; alum, 1 : 50 to 1 : 10; boric acid, 1 : 50 to 1 : 10.

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[1] Deutsch. med. Woch., Oct. 14, 1897.
[2] Denver Med. Times, Nov. 18, 1898.
[3] Phila. Med. Jour., Dec. 31, 1898.
[4] Western Med. Rev., June 15, 1898.

Furst[1] strongly recommends the use of **protargol** in the treatment of gonorrhea. In uterine gonorrhea he irrigates the uterus with a 0.5% solution of protargol, and gradually increases the strength to 2.5%. Then he inserts a 5% to 10% soluble bougie of protargol into the cervix; and when this has melted, the vagina is irrigated with a 10% solution, and a 10% protargol-glycerin tampon is inserted. Astringents are used after the second week, and the disease is usually cured in 3 weeks. Bodenstein[2] states that **irrigation** practised by the patient should be of strong solutions of bichlorid or carbolic acid, should be taken in the recumbent position, and with an elevation of the bag to the height of from 1 to 1.5 meters. He calls particular attention to the advantage gained by making use of the air contained in the douche-nozzle and tube as a means of distending the vagina, thus creating an "aërocolpos." In this manner, all the folds and irregularities of the organ are straightened out, and the entire surface becomes accessible to the irrigating fluid. But it is chiefly to the treatment of those cases in which the irrigation treatment has been unsuccessful that his paper is directed. As is the case in the male urethra, chronic gonorrheal vaginitis is a deep-seated process, the infectious agents being found chiefly in the submucosa, and are thus but little affected by irrigations, especially as ordinarily practised. In the treatment of chronic urethritis in the male, large-sized sounds are used, which distend the affected areas, mechanically bringing the gonococci nearer to the surface, and thus excite increased secretion, which is controlled by local applications. Reasoning from analogy, a similar plan of treatment should be successful in chronic vaginitis. He employs, therefore, a firm tamponade of the upper half of the vagina, filling in all the fornices. To aid in the softening and desquamation of the abnormally thickened horny layer of the epithelium, he adds glycerin to the cotton employed for this purpose. This agent, by virtue of its hygroscopic properties, also produces an exosmosis, which washes the gonococci to the surface. After 24 hours the tampons are removed, the secretion (which is increased in amount) mopped up, and a topical application of silver nitrate made in solutions varying in strength from 2% to 20%. Then the tamponade is again practised. In this manner an early cure will be effected, provided, of course, that the adnexa are not also the seat of infection.

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[1] Therap. Monatsh., Apr., 1898.

[2] Loc. cit.

AFFECTIONS OF THE VULVA AND VAGINA.

Histologic Changes in the Vagina.—Pretti,[1] from studies of the minute anatomy of the vagina in 32 specimens, arrives at the following conclusions: Contrary to the statements of many writers, neither glands nor mucous follicles could be demonstrated in the lining membrane. The latter is not a true mucous membrane, but is a true inversion (*Einstulpung*) of the epidermis. The squamous epithelium becomes more and more flattened with advancing age, gradually diminishing in thickness from the vestibule toward the portio. The height of the papilla does not depend upon the age of the subject, as the papilla may be slightly marked in young women. Extensive round-cell infiltration was frequently noted in the vagina when macroscopically it appeared to be perfectly normal. This is not to be regarded as necessarily pathologic, but may be due to the irritation resulting from an acrid cervical discharge.

Imperforate Hymen.—Pasteur and Clark[2] state that an imperforated hymen is comparatively common; but in the majority of instances it shows itself by protrusion of the membrane from the vulva, the swelling getting larger and larger with each menstrual period, dilating the vagina to an enormous extent, and pushing the uterus up into the abdomen. Sometimes the uterus becomes distended also. In different cases of imperforate hymen different portions of the genital canal may be dilated; in the vast majority of the cases, thé uterus is much distended; in others, the Fallopian tubes, and in others, again, the vagina is the part most affected. When the uterus is dilated, the tubes are often enlarged also; and this accounts for the regurgitation along them of the menstrual fluid, which is very liable to occur. It is very rarely that abdominal section is required for retained menses, and very few cases are on record. Alexandroff recommends that laparotomy should be performed if dilatation of the Fallopian tubes is diagnosed; and especially if one of the tubes has ruptured. In cases of imperforate hymen, it cannot be unusual for the retained blood to pass backward into the peritoneal cavity; and it is probable that in most cases no very serious results follow, though it is possible that the pelvic hematocele resulting may give rise to peritoneal adhesions; but when the hymen has been incised, an easy passage is left for the entrance of septic organisms, and then the effused blood will greatly facilitate their development.

A So-called Cremasteric Reflex in Women.—Once out of 4 times, Karl Bodon[3] has found evidences of what he considers to be a cremasteric reflex in women, manifested by a forward movement of the fundus uteri. The uterus, he remarks, is heavier than the testicle, and the round ligament is weaker than the cremaster; consequently, in seeking to elicit this reflex, it is well to touch both thighs at once, so as to bring both ligaments into play. He first inserts a sound into the uterus, and from a backward movement of the handle of the instrument he infers a forward movement of the fundus uteri.

Vaginismus and Vulvar Hyperesthesia.—Jaboulay[4] groups under the name of pelvic neuralgia a series of subjective disorders affecting, for the most part, the uterus and the ovaries, but sometimes the external genital organs also, causing vulvar hyperesthesia and vaginismus, without any discoverable lesion, even in rebellious cases and those of long standing. Hysterectomy and oophorectomy, being grave and mutilating operations, are absolutely contraindicated in such cases, efficacious though they may be in some instances. In 2 very old and rebellious cases, Jaboulay has succeeded in effecting a cure by excising the sacral chain of sympathetic ganglia or by dividing and tearing the anterior branches of the sacral plexus. This he accomplishes through an incision in the sacrococcygeal region. In the same journal for Jan. 22, Aubert, commenting on Jaboulay's communication, calls to mind one of his own, published about 20 years ago, in which were set forth the good effects of dilatation of the sphincters and stretching of the muscles. He mentions, in particular, the case of a young woman who, although 4 months married, had been unable to take part in coitus. Under anesthesia, the vulvovaginal ring and the anus were widely dilated; and in a week complete sexual intercourse was accomplished with less pain than the patient had experienced during the former fruitless attempts at it. Impregnation occurred, and the woman's conjugal relations were thenceforward regular and normal. [We think Aubert is quite right in bringing the dilatation treatment forward again; not as a novelty, of course, for he does not allege that it was original with him, but expressly states that the idea had been suggested several years before by Visca, in a Paris thesis.] Aubert explains the efficacy of the dilatation treatment by pointing out that nerves, as well as muscles, are stretched in the process; and he correctly maintains that it possesses the advantage of being quite within the power of any practitioner without special operative skill to carry out. [To this it may be added that simple procedures are to be preferred to intricate operations in all but exceptional cases. We are speaking, of course, of cases unaccompanied by grave organic lesion or serious danger to life.]

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[1] Zeit. f. Geb. u. Gyn., Band 38, Heft 2.

[2] Lancet, Aug. 20, 1898.

[3] Centralbl. f. Gynäk., Feb. 5, 1898.

[4] Lyon méd., Jan. 15, 1899.

Tumors of the Vulva.—M. Storer[1] states that in 420 primary neoplasms of the external genitals in women, Williams found only 17 fibromas, or about 1 in 600 of all the new growths in women he tabulated. The most common seat of fibromas of the vulva is one or the other labium majus, therein differing from the malignant growths, which are more apt to arise in the labia minora or from the clitoris. It has been claimed that vulvar tumors are more often found upon the left than upon the right side, as are also, it is said, cysts of Bartholin's gland; but this does not seem borne out by the cases he has been able to collect. The fibrous and fibromatous tumors that are seen in this region may have their origin in 2 main sources: (1) the subcutaneous connective tissue, and (2) the connective tissue and terminal muscular fibers of the round ligament, and possibly the muscular fibers in the skin; while, as curiosities, may be mentioned tumors arising in (*a*) the pelvic fascia and periosteum of the bony pelvis, (*b*) the rectovaginal septum, and (*c*) the uterus. Fibromas of the vulva are more common in the colored race than in the white. They generally first appear in young adult life. From their situation and the extreme elasticity of the tissues in which they are embedded, they quickly become pedunculated.

Interesting cases of **elephantiasis of the vulva** are recorded by

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[1] Boston M. and S. Jour., Dec. 15, 1898.

W. Renner,[1] W. D. Bullard,[2] and W. Finder.[3] Finder states that the disease usually begins in an early period of life, as a tumor with a broad base, but sometimes pedunculated. These tumors frequently grow to an enormous size, and have been found to weigh between 20 and 30 pounds. In tropic countries they have reached to the feet of the sufferers. In some cases the origin may be traced to an injury; in others, it has been attributed to the irritation of eczema, erysipelas, or syphilis. The skin is greatly thickened. The lymph-spaces and lymph-vessels, as well as all other vessels, are greatly enlarged and dilated.

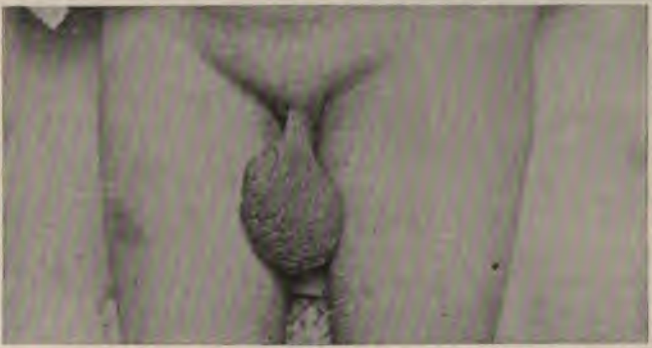

FIG. 55.—Finder's case of elephantiasis of the vulva (Phila. Med. Jour., April 1, 1899).

Vulvitis and Vaginitis.—D. Robinson[4] gives the results of his investigation of 50 cases of so-called vulvitis in children. The condition was found to be most common in children under 5 years of age; common between the ages of 5 and 10 years; and uncommon in children over 10 years of age. In 41 of the cases (76%) the pus-cells of the discharges contained cocci, which presented characters that, so far as is known, are peculiar to the gonococcus of Neisser. The contagious character of the discharge was illustrated by several cases. The chief symptoms were painful micturition and pruritus vulvæ; occasional complications were ophthalmia, peritonitis, and arthritis. In most cases the inflammation appeared to be superficial to the hymen. Robinson expressed the opinion that the majority of cases of vulvitis in children are probably gonorrheal in origin. Handfield-Jones found it difficult to believe that over 70% of all vulvar discharges in children depended on gonorrheal infection. The following points seemed to him to render the gonorrheal theory doubtful: 1. The disease did not spread to neighboring tissues. 2. It was readily cured. 3. The inguinal glands were rarely enlarged. 4. The disease was common in delicate children and rare in the robust. 5. In undoubted infection by rape, the disease was much more severe than in ordinary cases of vulvitis. Vigerani and Casarini[5] have examined a comparatively small number of children, with a view to the bacteriology of this disease. They find that clinically it is often impossible to differentiate between a simple and a gonorrheal vaginitis. In the simple vaginitis, it is common to find a diplococcus which microscopically resembles that of Neisser, but does not stand culture-tests. When the Neisser gonococcus was indisputably found, it was always after specific contagion, either direct or indirect. In the vaginas of healthy children the authors never found the gonococcus.

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[1] Brit. Med. Jour., Sept. 24, 1898.
[2] Med. Rec., Jan. 28, 1899.
[3] Phila. Med. Jour., Apr. 1, 1899.
[4] Lancet, Jan. 14, 1899.
[5] Riforma Med., Nov. 29, 30; Dec. 1, 1898.

Cystocele.—A. Routh[1] remarks that a cystocele may be primary or secondary. It may be primary in 2 ways: 1. From stretching of the anterior vaginal wall in labor, when the bladder has not been drawn up out of harm's way during the first stage, and has been subjected to prolonged distention, together with the anterior vaginal wall. If retention of urine follows, and the fundus of the uterus is pressing upon the fundus of the bladder, the base of the bladder bulges down through the vaginal wall, and cystocele results; and, if prolapsus uteri is also present, is sure to persist. 2. Primary cystocele may also result when the membranes rupture before the cervix is fully dilated. The head then is the dilating body, and may force down the anterior lip, dragging with it the anterior vaginal wall and base of the bladder. The ureters are inserted into that portion of the bladder thus drawn down; and if the head is pressing against the pubes, urine collects in the lower prolapsed portion of the bladder, forming an acute cystocele, the upper part of the bladder being empty. Secondary cystocele is predisposed to by a deficient perineum, from absence of support to the anterior vaginal wall; and is directly produced by prolapsus and procidentia uteri, and by those rare cases of primary hypertrophic elongation of the supravaginal cervix. The operation Routh recommends is the following: The cervix is drawn down, an incision is made transversely in front of the cervix, and the bladder is stripped off the front of the uterus, as in the operation for vaginal hysterectomy. The anterior wall of the vagina is then seized by its cut edges and drawn down toward the vulva, and the bladder is stripped off its under surface and turned up, out of the way, above the pubes. To do this effectually, it may be necessary to open the uterovesical fold of peritoneum; but this is not always essential. An incision is then made

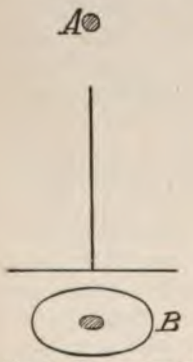

FIG. 56.—Transverse and longitudinal incision: *A*, urethra; *B*, cervix (Brit. Med. Jour., Sept. 17, 1898).

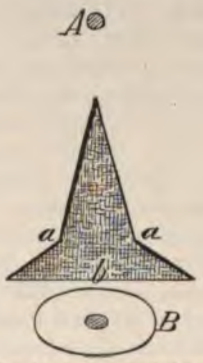

FIG. 57.—The denuded area; points *a*, *a* to be sutured to point *b* (Brit. Med. Jour., Sept. 17, 1898).

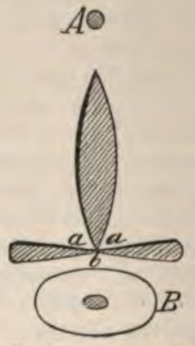

FIG. 58.—*a*, *a* are united to *b*; the resulting transverse and longitudinal edges are to be united (Brit. Med. Jour., Sept. 17, 1898).

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[1] Brit. Med. Jour., Sept. 17, 1898.

longitudinally along the center of this vaginal flap, running from the center of the transverse incision to the neck of the bladder (Fig. 56). The two resulting triangular flaps are then placed in position and made to overlap, and the redundant portions cut away along both the transverse and the longitudinal incisions. The amount of tissue removed will, of course, vary, but approximates to that shown in Fig. 57. The edges are now united. This is best done by drawing down and suturing a point in each lateral edge to the central point of the transverse edge—*a*, *a*, *b* (Fig. 57). The result is seen in Fig. 58. All that is then needed is that the raw edges should be united along both the longitudinal and the transverse lines. The vagina is thus shortened in both ways. It is a good plan to stitch the supravaginal cervix to the vaginal walls; and this anterior vaginal fixation is essential if the uterus is retroverted and prolapsed. To do this, it is, of course, necessary to open the uterovesical pouch of peritoneum to get the bladder-wall out of the way, and so be able to stitch the body of the uterus to the vaginal wall.

Method of Creating a Vagina in a Case of Congenital Absence.—Robert Abbe[1] planned and carried out the following operation on a woman, aged 21, who suffered from congenital absence of the vagina. A crescentic cut was made across the interlabial space, with the concavity upward, thus getting a little shelf of mucous membrane below the urethra, to divert escaping urine. By blunt dissection, a free cellular space to the depth of 5 in. was made between the bladder and rectum, which was temporarily packed with sterile gauze to check oozing. Thiersch grafts were then cut from the thigh, sufficiently large to cover an ample plug, made thus: A thin French rubber condom, such as can be obtained at drug-stores, was sterilized and stuffed with long strips of iodoform gauze. Upon this the skin-grafts were spread, with their wet sides outward and edges freely overlapping, numerous small punctures having been previously made in the rubber, so as to allow the gauze to absorb any discharge. A piece of rubber tubing, wrapped loosely in iodoform gauze, was now inserted into the rectum, to facilitate the free exit of gas during the subsequent prolonged constipation. Finally, the graft-covered form was carefully passed into the new vaginal space, the walls of which were held apart by 3 deep retractors, which, on removal, allowed the fresh surfaces to come into closest contact with the wet surface of the grafts. The plug was held in position by two silkworm-gut stitches passed across the vulva, transfixing the plug, and tied over iodoform plugs at either side. The urine was drawn off every 8 hours for a week, and the bowels confined for 10 days, when the plug was removed, the packing being taken out before the rubber. The grafts all had taken, and the new cavity measured 4½ in. deep. The patient was married in 10 weeks after operation, and keeps the vagina open by wearing a wax bougie part of every day.

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[1] N. Y. Med. Rec., Dec. 10, 1898.

PERINEORRHAPHY.

Kelly[1] divides cases of complete laceration of the perineum into 2 groups: 1. Those in which the tear extends barely through the sphincter and goes no further. 2. Those in which the ends of the sphincter are separated by a well-defined interval of a centimeter or more. In the first of these groups, the muscle is merely divided, and the ends lie closely together; the resulting cicatrization is conservative, and leads to the approximation and union of the ends, separated by only a plug of scar-tissue. The muscle is then no longer a true sphincter. In the second group of cases, the conditions are even more aggravated; but in both groups continence is maintained by the activity of the internal sphincter. Not rarely, however, both sphincters are lacerated as a result of the same injury. Even in cases in which the anus presents a normal appearance, the surgeon should not fail to recognize that the sphincter may be ruptured, and the torn ends separated by a considerable interval. Kelly's operation, under such circumstances, is intended to avoid the objections that have been raised to the operations of Emmet and Hegar. Hegar's plan is to suture the internal sphincter by fine silk, and the external sphincter by fine catgut. What Kelly insists upon is the more thorough dissection of the ends of the sphincters, and the removal of all fibrous tissue. If, in addition, the external sphincter is separated from the overlying skin for a considerable distance, it will lie deeper after the sutures have been inserted; and hence danger from infection will be lessened. If the tear is in the external sphincter only, it is freed as described for ½ in. or more, and the catgut sutures inserted, but not tied. The rectal mucous membrane is then sutured, the suture-line extending out over the skin. Then the sutures in the sphincter are tied; and afterward a silkworm-gut suture is inserted to take the tension from the buried sutures in the sphincter (see Plates 3 and 4). When the internal sphincter is also involved, its ends are sutured by fine silk stitches, which enter and leave through the mucous membrane of the rectum. Postoperative enemas of warm oil, given through a soft catheter, are recommended.

Baldy[2] has often had to contend with infection of the rectal side of the wound, and commends the principle of going high into the vagina, splitting and turning down a flap, and by this mode of suturing getting rid of the wound in the rectum, as best calculated to overcome this difficulty. Hirst[3] knots 4 of the septal stitches in the rectum. Above the rectal sutures a triangular stitch is inserted, somewhat resembling the Emmet suture, for securing the ends of the sphincter, but placed above the sphincter, which is brought together by the rectal stitches, and acting simply as a splint to the rectal wound, an additional support to the sphincter stitches, and a barrier between the rectal and vaginal sutures (Plate 5). The vaginal wound is united by vaginal and perineal sutures, as in the Hegar operation for lacerated perineum.

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[1] Bull. Johns Hopkins Hosp., Jan., Feb., Mar., 1899.

[2] Phila. Med. Jour., June 3, 1899.

[3] Univ. Med. Mag., Jan., 1899.

PLATE 3.

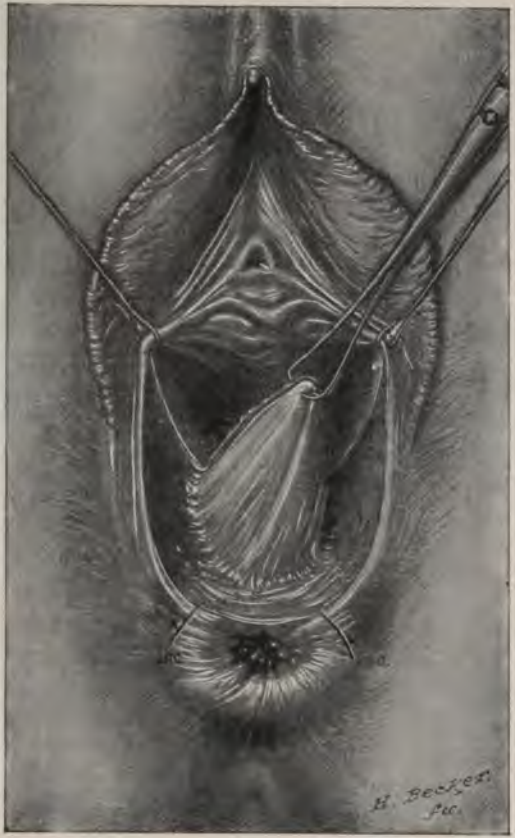


FIG. 1.—Denudation on vaginal and perineal surfaces. The tongue of tissue in the middle lifted up and dissected loose from the internal sphincter (*i. s.*). The denudation does not, however, expose the external sphincter, which is in this case laid bare by the two incisions (*Inc.*) parallel to the anal orifice.

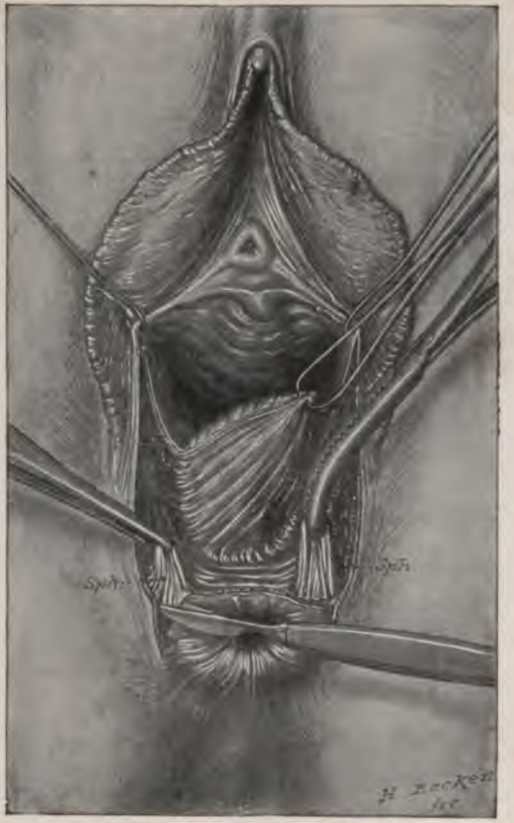


FIG. 2.—The incisions made as shown in Figure 1, and the sphincter-ends bared by dissection.

(Kelly, Bull. Johns Hopkins Hospital, Jan.-March, 1899.)

PLATE 4.

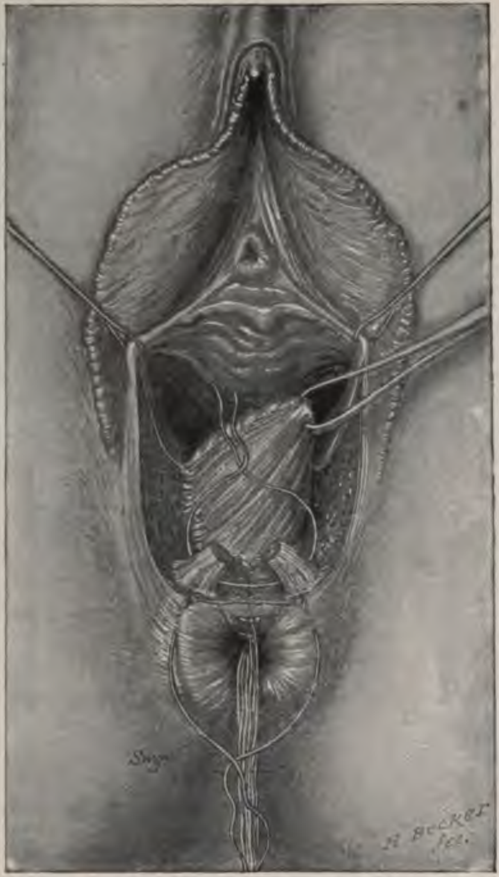


FIG. 1.—Denudation completed and rectal sutures tied, uniting the internal sphincter and radiating out into the skin-surface.

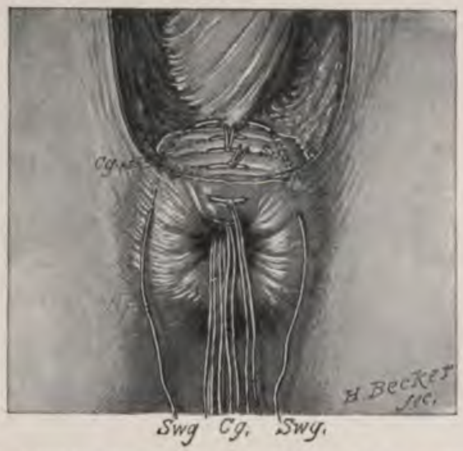
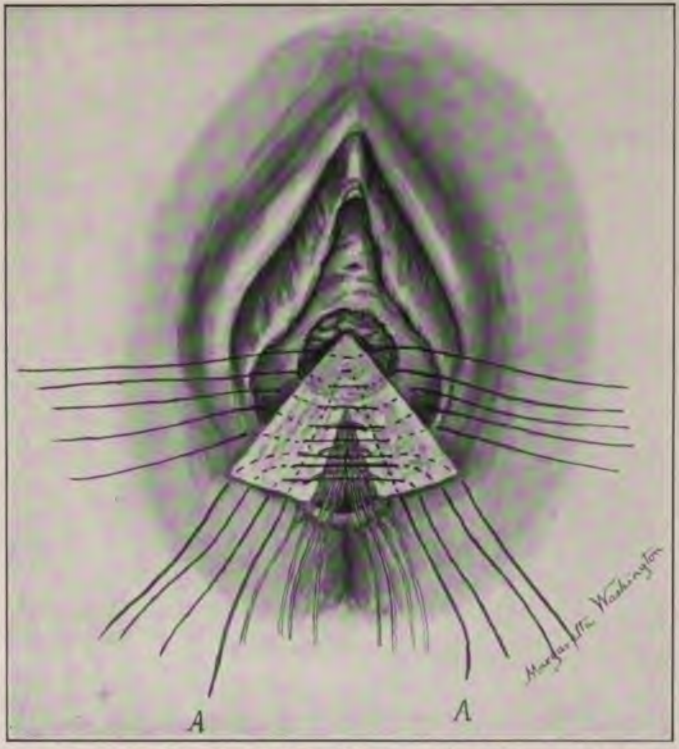


FIG. 2.—The rectal sutures all in place, and the sphincter (*Sp*) ends united by 3 buried catgut sutures. A silkworm-gut tension-suture passes through the center of the sphincter-muscle, up around through the septum.

(Kelly, Bull. Johns Hopkins Hospital, Jan.-March, 1899.)

PLATE 5.



The sutures for a complete laceration of the perineum in either a primary or a secondary operation: *A*, *A*, the barrier or splint stitch (Hirst).

CONDITIONS OF THE CERVIX UTERI.

Cervical Lacerations.—Marx[1] records a case of fatal hemorrhage from cervical laceration. He states that in the absence of hemorrhage he never touches a lacerated cervix. Simple traction on the uterus, in such a direction as to produce flexion, will be found sufficient to check the bleeding in most instances. In the presence of a complication such as this, there is usually some doubt as to the aseptic condition of the parts; and hence he does not favor suturing the cervix. It is not at all uncommon for lacerations of the cervix, which appear enormous at the time of parturition, to shrink to an insignificant size afterward; and consequently he does not ordinarily advise immediate suture. He has known a house-surgeon to sew up the cervix so tightly as to prevent all escape of lochia. The diagnosis of cervical hemorrhage is not always easy; and in some instances even packing the uterus will not be sufficient. W. P. Manton[2] states that in the large majority of lesions of this kind occurring in healthy women at aseptically conducted labors, and with proper after-care, the laceration, even to the extreme limit, heals perfectly and gives rise to no further inconvenience. Examinations of such cases at from 6 weeks to 2 months following delivery will discover no lesion of the cervix beyond the slight widening of the external os indicative of parturity. In a certain proportion of cases, healing will have apparently taken place in the greater extent of the wound; but the approximation of the torn surfaces having been imperfect, the interstices are filled in with plastic material, which subsequently changes to connective tissue, and forms a firm plug within the softer elements of the part; or the wound, partially healing above, leaves below a wide excavation, that will admit the tip of the finger or even the first phalanx; or uniting below at the mouth, a widened or chambered condition of the cervical canal remains below. In another small percentage of cases, generally in the presence of mild septic infection, the ruptured cervix apparently makes no effort toward the reestablishing of its integrity, the surfaces remaining in comparative apposition as long as the patient continues in the recumbent position; but with the assumption of the erect attitude a gradual separation of the lips takes place, with resulting ectropium. H. P. Newman[3] believes that in the majority of cases **amputation of the cervix**—tracheloplasty—should be employed, rather than Emmet's operation or trachelorrhaphy, for lacerations of the cervix; plastic work looking to the removal of diseased tissue, the restoration of organic function, and remodelling of the cervix to as nearly a normal outline as possible. In his new method, the writer employs a specially devised knife, removes the diseased tissue from the cervix, leaving flaps which, if properly made, fall together and inward, so as to assume the appearance of a normal cervix, and require only the simplest suturing to keep them in position. The advantages claimed for this method of operating are: 1. The quickness and ease of operating by the knife here presented, the manner of making the flaps transcending in certainty and safety of execution the ordinary methods of excision. 2. Clean, smooth-cut surfaces, which are obtained without haggling of tissues, always most desirable in plastic surgery. 3. The easy approximation of flaps and the avoidance of all hemorrhage beneath them, by the deep placing of the sutures and compression of the flaps. 4. The accurate approximation of mucous membrane to mucous membrane, thus avoiding granulating surfaces, the formation of a cicatrix, and the constricting of the canal. This feature, which obtains also in Schröder's operation and modifications of it, is of great importance, and a decided advantage over trachelorrhaphy; espe-

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[1] Med. Rec., Nov. 12, 1898.

[2] Physician and Surgeon, Dec., 1898.

[3] Jour. Am. Med. Assoc., Sept. 10, 1898.

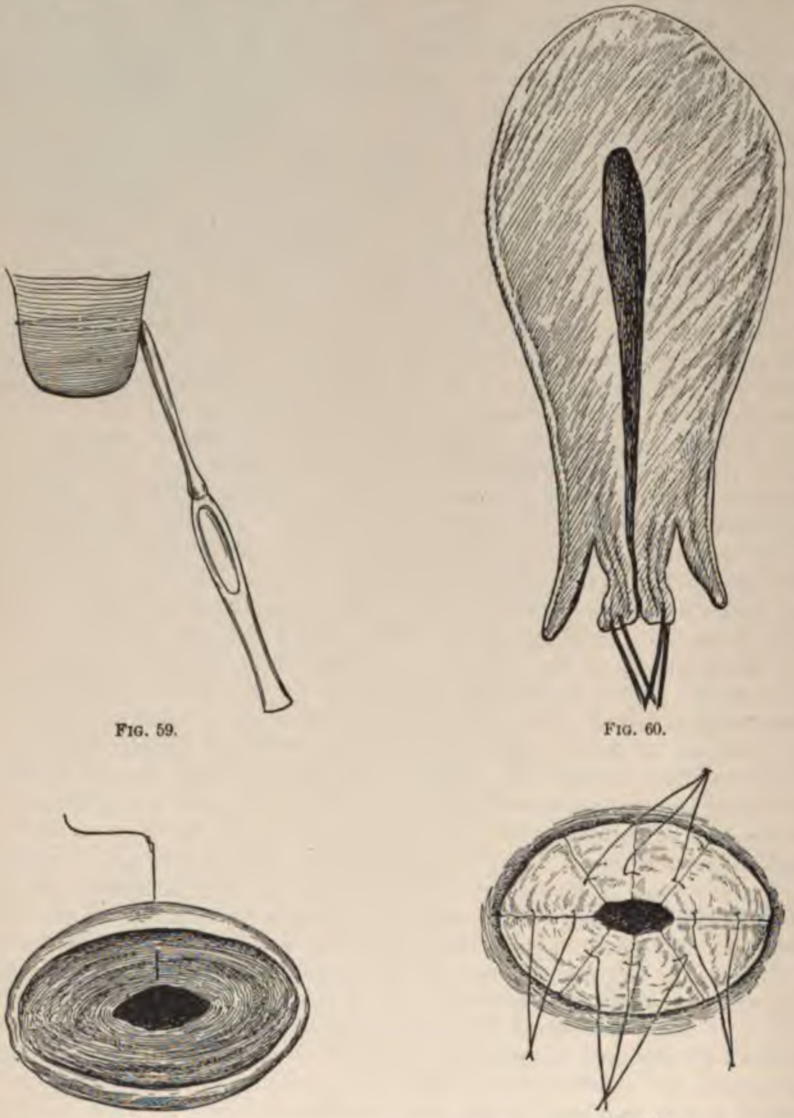

FIG. 59. FIG. 60.

FIG. 61. FIG. 62.

FIGS. 59-62.—Newman's method of amputation of the cervix (Jour. Am. Med. Assoc., Sept. 10, 1898).

cially where the entire cervical mucous membrane is removed. 5. The certainty of obtaining a permanently patulous canal and a well-formed cervix, with pronounced reduction of the hyperplastic uterus. 6. The simplicity of the after-treatment. [This method is a decided improvement over the older methods, and has many features to recommend its adoption.]

FISTULAS.

Vesicovaginal Fistula.—C. P. Noble[1] remarks that the reports of all operators having a large experience with operations by the vaginal route, more especially vaginal hysterectomy and anterior kolpotomy, contain references to the formation of postoperative urinary fistulas. The more common fistula is that between the bladder and vagina, and is usually due to laceration of the bladder-wall when it is stripped from the anterior wall of the cervix and uterus. Doubtless, also, when clamps, or when the cautery is used in cutting through the vaginal walls, it is occasionally caused by sloughing either from the pressure of a clamp or from the too widespread action of the cautery. Less common is the occurrence of ureterovaginal fistulas caused by the cutting or crushing of the ureters. In the treatment of vesicovaginal fistulas, Noble argues the importance of closing the bladder itself without closure of the vaginal walls; and, secondly, the necessity for the prolonged use of the drainage-catheter. Closure of the bladder itself, independently of the vaginal walls, has been practised by Sänger, Walcher, Mackenrodt, and Kelly; various methods being employed to accomplish this result. The direction of the line of suture, whether anteroposterior, transverse, or diagonal, should depend upon the conditions present in the individual case. It will usually be best in such cases to close the fistula with a fine running catgut suture, and to reinforce this by interrupted sutures of chromicized catgut or silkworm-gut. Lionvinoff[2] has examined bacteriologically the so-called diphtheric membrane that forms around the edges of vesicovaginal fistulas. In every instance he found the **Bacterium uveæ** of Leube, as well as small, rod-shaped organisms with rounded ends, which liquefied gelatin and gave a green color in agar. The latter were evidently the **Bacillus pyocyaneus.** He infers that these may not only develop in a suppurating wound, but by penetrating more deeply may give rise to obstinate local infection. Rouzmine[3] analyzes 44 cases of fistula observed in the hospital at Saratoff, among 1004 gynecologic cases (4.36%). This large proportion corresponds with Neugebauer's observation, that fistula is relatively more frequent among Russian women, on account of the fact that midwives are rarely employed by the peasants, and hence prolonged labors are common. As regards the results of operative interference, 47.74% were cured by a single operation; 6.81%, by 2; 18.18% were relieved by diminishing the size of the fistula; episiocleisis was successful in 1 instance; 8 patients were not relieved. The denuded surface was always quite extensive; and was made so that the edges could be approximated with the least possible tension. Silk sutures were generally used (rarely silver wire), which were removed on the sixth or eighth day. A catheter was left in the

[1] Am. Gyn. and Obst. Jour., Nov., 1898. [2] Jour. d'Obstét. et de Gyn., No. 2, 1898. [3] La. Gynéc., Apr. 15, 1898.

bladder for 9 or 10 days, after which time the patient was allowed to leave her bed. Anesthesia was rarely used. Stanmore Bishop[1] looks upon the reformation of the bladder-wall as the essential point for cure; and considers the union of any raw surfaces in the vagina, although important, of only secondary value beyond the fact of supporting and strengthening the reformed vesical wall. If the vaginal mucous membrane is utilized with the mucous side turned toward the bladder-cavity, where alone that kind of surface is of primary importance, and with no break in the edges at all, but making a perfectly continuous surface up to a narrow point of union, we shall have gone, the author believes, far toward solving the problem; and the loss of material in the vagina will be of very little consequence, compared with the advantage obtained. After the separation of the flap around the fistula, 4 double threads are passed, their ends knotted and lying outside the vagina. A pair of curved forceps is passed through the urethra up to the fistula, and the 4 pairs of threads are brought together and their knotted ends placed within the grip of the forceps. If gentle traction is made upon these, the circular flap is inverted into the bladder in such a way that the mucous membrane will face the bladder, while the raw connective-tissue surface will face itself and come easily together at the level of the bladder-wall, the innermost edges projecting as a tube into the bladder-cavity. While traction upon these threads is gently maintained, and before the frill is inverted, a fine silk suture is carried around it just above its extremity; this passes through the connective tissue, but must carefully avoid the mucous membrane. This is now cut short, the frill inverted, and the guided threads divided and drawn through the urethra. The advantages claimed by Bishop appear to be: 1. Absence of tension upon the uniting surfaces. 2. Mucous membrane is alone opposed to the action of the urine. 3. The cubic capacity of the bladder is not much decreased, as in other operations for a similar purpose. 4. The sutures are separated from the bladder by the mucous membrane in its entire thickness.

Uterointestinal Fistula.—Neugebauer[2] has issued valuable tables of 28 cases of uterointestinal fistula. In 12, the fistula was not detected till after death; in 21, the patients were pregnant or recently delivered. In 11 of these cases the fistula was due to retained fetus, "missed labor." In 1 very unusual case, the patient had yellow fever in the fourth month of pregnancy. The vomiting set up abortion, followed by fatal peritonitis. A communication 4 inches wide was found between the intestine and the uterovaginal canal.[3] In 9, the fistula occurred from injuries at delivery or puerperal complications. Thus, in 2 cases the injury was due to the forceps; in 1, to version; in 1, to manual detachment of the placenta; 3 other cases are indefinite in this respect, but apparently some injury during labor explains them. There remain 7 cases, in which the patients were not pregnant, but recently delivered: 2 were purely teratologic in newborn children; in 2 the fistula was caused by rupture of a hematometra into the rectum; in 2, by evacuation of pus from a suppurating myoma; in 1, from precisely the same condition, there being also tuberculosis of the intestine. As to the part of the intestinal canal involved, the communication of the uterine cavity was with the stomach in 2 cases, the rectum in 9, the sigmoid flexure in 3, the transverse colon in 1, some part of the large intestine not specified in 2, and the small intestine in 12. This series includes some repetitions, as in 1 case there was a fistula involving the small intestine and the sigmoid flexure, in 1 there were 3 small intestinal fistulas, and in 1 as many as 3 rectal fistulas; there was also a double case of this type not clearly defined. More distinctly, the individual 28 cases are thus classified: Uterogastric fistula, 2; uterointestinal (small), 11; uterocolic or uterorectal, 14; unspecified case, 1. No fewer than 14 of the 28 were fatal. Of the 14 recoveries, spontaneous closure occurred in 11. This seems the rule when the fetal relics are evacuated in "missed labors." In 1 forceps-injury case, the fistula did not close for years. In 1 case, the os externum was closed by sutures after paring of its edges, so that the catamenia drained into the intestine. Resection of the fistulous portion of intestine was successfully performed in 2 cases, through an abdominal incision; in 1 case, abdominal section was undertaken, in order to remove a fetus retained in the uterus, which was incompletely ruptured. Feces and ascarides had issued from the uterus, which communicated at the fundus with the small intestine. The patient died. In another fatal laparotomy, the uterus and intestine were separated, and the fistula closed by suture. Resection of the intestine would, it was admitted, have been safer. Nine died, unoperated upon, of exhaustion and pyemia; 2 of tuberculosis; 1 of yellow fever. The 2 teratologic cases were naturally fatal. Treatment answers better than operation, considering the circumstances under which uterointestinal fistula is usually seen. Removal of the source of irritation—generally retained fetal bones—insures cure. The 2 cases of operation for closure of the bowel from the original aspect proved failures.

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[1] Practitioner, vol. lx., No. 4.

[2] Rev. de Gyn. et de Chir. abdom., July–Aug., 1898.

[3] Rhein. Monats. f. prakt. Aertze, p. 574, 1850.

THE URINARY ORGANS.

The Bladder.—Cystitis.—A thorough resume of the subject was made in the Chicago Gynecologic Society on Nov. 19, 1898.[1] Senn opened the discussion by dealing with the etiology and classification. He said that the recent great advances in the prevention and more successful treatment of infective surgical diseases are the direct outcome of the vast increase of our knowledge concerning their etiology. Surgical bacteriology paved the way for rational surgery. It is now very generally conceded that inflammation of any tissue or organ is invariably caused by microbic invasion; and that all other causes only act by determining or favoring infection. If this be true, it is apparent that the successful treatment of cystitis presupposes an accurate knowledge of the nature of the microbic origin of the inflammation. Suppurative cystitis and tuberculous cystitis are so entirely different in the nature of their bacteriologic origin, that the method of treatment successful in one would almost with certainty aggravate the other. Inflammation of the bladder is often the result of a mixed infection; and it is of paramount importance in all such cases to gain accurate information, by bacteriologic examination of the urine, concerning the part which each kind of microbe plays in the causation and continuance of the inflammatory lesion, before an intelligent and successful course of treatment can be devised and carried into effect. It is of especial importance, in the successful management of cystitis and conditions mimicking cystitis clinically, to make a sharp distinction between the cases in which the symptoms are caused by inflammation and those in which they are due to noninflammatory pathologic conditions. It will be seen from what has been said that the modern etiologic study of cystitis is based largely on a carefully conducted bacteriologic examination of the urine. The exercise of patience and perseverance is often required, as in many cases the urine has to be examined repeatedly before the necessary information is gained. Predisposing causes do one of two things, or both: 1. They effect tissue-changes which determine the localization of microbes from the bladder, adjacent organs, or the general circulation. 2. They furnish a nutrient medium for the growth and multiplication of microbes. The most frequent of all predisposing causes of cystitis is retention of urine from any cause. Abnormally increased muscular action of the bladder, as occurs in cases of central or peripheral irritation of the nerves which preside over the muscular structure of this organ, or in consequence of the action of local irritants, as a stone, foreign bodies, tumors, chemic or toxic substances, is a recognized predisposing cause of inflammation of the bladder. Abnormal conditions affecting the quality or quantity of urine frequently precede inflammation of the bladder, and must be regarded in the light of predisposing causes. Tumors of the bladder, malignant and benign, frequently precede and complicate cystitis. A calculus or a foreign body becomes a predisposing cause of cystitis, by the production of local lesions and vascular changes favorable to the localization and growth of bacteria, which are the essential cause of the inflammation. Compression of the bladder from within or from without is a potent predisposing cause of cystitis. Pressure from either direction diminishes the vascularity and nutrition of the bladder-wall, and in this way increases the susceptibility of the tissues to invasion by disease-producing microorganisms. Venous stasis is a local predisposing cause of cystitis. To trauma has been assigned for centuries a direct influence in the causation of cystitis. The essential or exciting cause of cystitis is invariably the presence and pathogenic action of microbes in the tissues of the bladder, the seat of inflammation. In the study of the etiology of cystitis, it is important to consider in detail the routes of infection. Under the head of exciting causes, Senn dealt with infection through the urethra, infection by the urine, infection from adjacent organs, and infection from the blood. Coming to the classification of cystitis, he said that a rational classification is essential in discussing the etiology, symptomatology, diagnosis, prognosis, and treatment of this disease. He gave both Guyon's and Rovsing's classifications of cystitis. In the anatomic classification, pericystitis, paracystitis, interstitial cystitis, and endocystitis were enumerated and dwelt upon at length. Under the head of pathologic classification he gave catarrhal cystitis, suppurative cystitis, ulcerative cystitis, exudative cystitis, and exfoliative cystitis, and dwelt upon each of these forms at considerable length. In the clinical classification he gave acute cystitis and chronic cystitis; and in the bacteriologic classification: 1. Bacillus coli communis infection; 2. Saprophytic (mixed) infection; 3. Staphylococcus infection; 4. Streptococcus infection; 5. Streptococcus erysipelatis infection; 6. Typhoid bacillus infection; 7. Diplobacillus infection; 8. Gonococcus infection; and 9. Bacillus-tuberculosis infection. The bacteriologic classification of cystitis is the most modern, and certainly the most important. It has a direct bearing on the etiology of the disease, and suggests to the surgeon the most rational course to pursue in its treatment. In long-standing and obscure cases of inflammation of the bladder, the investigation is not complete without examination of the urine with sufficient care and thoroughness upon which to base a correct bacteriologic classification. Ferguson made some remarks on **the surgical treatment of cystitis in the female.** He thinks chronic cystitis demands surgical treatment. In cases of cystitis in the female, local applications may be made through the cystoscope, and curettage might be performed. The application of silver nitrate, and various topical medications, can be made to inflamed areas and ulcers of the bladder. Suprapubic cystotomy in the female has been done, and there may be some cases calling for its performance; still, he believes there is very little benefit to be derived from drainage suprapubically. Kolpocystotomy, as practised in cases of cystitis in the female, needs only to be mentioned to be condemned. Draining the bladder through the vagina, causing great discomfort and discharge of urine through that avenue, necessitates subsequent operation to cure the vesicovaginal fistula. He did this operation only once; and he always regretted it, because he had to do three subsequent operations before the vesicovaginal fistula was closed. A careful examination should be made of the uterus and tubes. The kidneys should receive attention before the bladder is treated; sometimes after. If there is a tuberculous condition of the kidney, it would better be treated surgically before the secondary vesical condition, because extension of the disease to the kidney is much more dangerous than extension of the tuberculous disease of that organ to the bladder, which can be treated secondarily.

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[1] Jour. Am. Med. Assoc., Dec. 17, 1898.

Vineberg[1] states that with Kelly's cystoscope a few applications of a 5% or 10% solution of silver nitrate directly to the red patches of cystitis almost invariably effect a cure.

Implantation of the Ureters in the Rectum.—F. H. Martin[2] has devised a new operation for dealing with the ureters in cases in which extirpation of the urinary bladder becomes necessary. From experiments on dogs he has found that the rectum makes a fairly good receptacle for the urine; but that implantation of the ureters, as has been heretofore proposed, results in infection of the kidney, and subsequent death from nephritis. He has therefore attempted to obviate this evil; and has succeeded by so placing the ureters that they will empty in the direction of the long diameter of the rectum, in the walls of which they are buried longitudinally for a distance of 1 inch or more. By so doing, in the act of defecation the fecal mass will squeeze the caliber of the ureters, closed by its pressure on the mucous membrane, and the pressure being exerted from above downward, in the direction of the onward flow of the urine, will empty the ureter by a milking process.

Floating Kidney.—C. Keller[3] says there is no satisfactory theory to account for the causation of movable kidneys; congenital tendency may exist; but, so far, no such condition has been discovered in autopsies upon infants. The symptoms usually become prominent between the twentieth and fortieth years. Many causes have been suggested for this late appearance; some acting upon the body from without, as traumatism and tight lacing; others depending upon changes within the body, as rapid emaciation or relaxation of the abdominal walls. No one theory will account for all cases, but the elements of each individual case must be considered. A sudden traumatism may have loosened the suspensory apparatus of the kidney; compression of the lower thorax by corsets, tight lacing, or heavy skirts may have stretched these supports gradually; or excessive action of the diaphragm, due to chronic cough or constipation, or the lifting of heavy weights, may have exaggerated the normal respiratory displacement of the kidney to an abnormal degree. Counteracting the tendency to displacement is the general intraabdominal pressure; and anything that tends to lessen this throws a greater strain upon the bloodvessels and connective tissue holding the kidney in place, and thus encourages an abnormal degree of mobility. Relaxation of the abdomen after childbirth is the most common cause of this diminution of pressure; therefore, the most important prophylactic measure is the careful treatment of the woman during the puerperium. The removal of large abdominal tumors, producing the same effect as childbirth—the rapid absorption of the large deposits of fat usually found in the mesentery and beneath the peritoneum—contribute to these displacements by decreasing the contents of the abdominal cavity and by loosening the attachments of the kidney through absorption of the perirenal fat. In such cases the therapy is naturally an improvement in the general nutrition of the patient and the alleviation of the nervous symptoms. Keller does not believe in any direct causal connection between diseases of the female genitalia and movable kidney. The conditions are often found associated, but their simultaneous occurrence must be looked upon as due to a common cause or purely accidental. There is no complex of symptoms characteristic of movable kidney; nor is the distress always proportionate to the amount of displacement. There may be great discomfort; but there is usually nothing in the symptoms to point to the kidney, rather than to other organs, as the seat of the trouble. The location to which the pain is referred and the character and duration of the pain vary greatly. The diagnosis is possible only after the abnormal mobility of the organ has been shown by careful palpation. Phantom tumors; fibromas of the abdominal wall; a movable spleen; tumors of the liver and gallbladder, of the stomach, duodenum, colon, omentum, and even of the ovary and uterus, may be mistaken for the displaced kidney, the recognition of which rests upon the shape, the presence of the hilum, and the pulsation of the renal vessels. Most often the diagnosis must be made by exclusion. The differential diagnosis from tumors of the uterus and adnexa may be quite difficult when the displacement of the kidney is sufficient to allow it to descend into the pelvis, or when it occupies that position congenitally; but, as a rule, it is not difficult when suspicion of the condition leads to careful examination. The treatment is entirely symptomatic. Though we may occasionally determine the cause, we can rarely cure the disease. The apparatus usually recommended is of little service in keeping the kidney in place, and nephrorrhaphy is too often followed by relapse. A strong, light, flexible binder making pressure over the lower abdomen and supporting the relaxed abdominal muscles may give relief; or a truss with large abdominal pads may be tried. A cure can scarcely be expected; but sometimes such an apparatus relieves the distress. The abdominal muscles should be strengthened by massage and faradization; and the general health of the patient must be improved by tonics and careful hygiene. Nephrorrhaphy may give temporary relief; but an early resumption of hard work is almost certain to cause recurrence of the trouble. When the operation is done, its effect should always be supplemented by the long-continued use of a binder. Senn[1] gives the following details of his operation of nephropexy without suturing: After exposing the kidney by Simon's vertical lumbar incision, the viscus is pushed into the wound by an assistant. About half of the kidney should project below the lower margin of the last rib. With dissecting-forceps and curved scissors, the adipose capsule is excised over the whole posterior surface of the kidney. The kidney is now brought well forward into the wound, and the cut margins of the adipose capsule are pushed away from the kidney until the borders are freely exposed, when the fibrous capsule is thoroughly scarified with a long needle. At this stage of the operation the lower border of the kidney is grasped by its capsule with a French volsella forceps and brought well forward into the wound. With dissecting-forceps, finger, and blunt dissector, the lower third of the kidney is laid bare, and a strip of iodoform gauze about 1 inch in width, and composed of 4 layers of gauze, is placed under the lower end of the kidney, and each end brought out over the respective wound-margin. By making traction on the forceps and gauze strip, the lower end of the kidney is brought sufficiently forward to rest in the lower angle of the external incision. During the operation, the margins of the external incision must be well retracted. With a long strip of iodoform gauze, the floor of the wound is then carefully packed in such a way as to force the pararenal fat away from the borders of the kidney, leaving the posterior scarified surface well exposed, when, with the same strip of gauze, this is covered, and the whole wound well tamponed with another piece of gauze. The strip of gauze holding the kidney is then tied over the iodoform-gauze tampon, which forms a wedge, and will effectually prevent displacement of the organ until firm adhesion has rendered direct mechanical support superfluous. The 2 pieces of gauze are tied together, and the wound dressed in the usual manner. No part of the lumbar incision is sutured. At the end of 5 or 6 days the tampon is removed.

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[1] N. Y. Med. Jour., Jan. 7, 1899.

[2] Jour. Am. Med. Assoc., Jan. 30, 1899.

[3] Monatsch. f. Geb. u. Gynäk., Jan., 1898.

MENSTRUATION AND ITS DISORDERS.

Development of the Uterus.—F. V. Friedländer[2] concludes, from a study of 161 uteri, from the embryo to early puberty, that the cervix develops first. After the fifth year the fundus and the ovaries develop. In early life, certain peculiar, villus-like papillas are found around the internal orifice, which he is the first to describe. These may prove sufficient to arrest the outflow of mucus, and even render the menstrual flow difficult. In certain cases of dysmenorrhea not due to an endometritis, the persistence of an infantile form of development may be inferred.

[1] Dublin Jour. Med. Sci., July 1, 1898.

[2] Arch. f. Gynäk., vol. lvi., 43.

Tubal Menstruation.—Thomson[1] reports 2 cases that serve to throw some light upon this disputed question, others having been published by Hofmeier, Terrillon, and Landsbery. In the first, a fistula communicating with the tube discharged blood at every menstrual period, the hemorrhage beginning and ceasing with the commencement and cessation of the uterine flow. In the second case, an abdominal fistula followed an operation for early tubal pregnancy; 8 months later, the patient observed bleeding from the fistulous opening coincident with menstruation; this phenomenon was repeated several times, until a silk ligature was discharged, when the fistula closed. These clinical facts seem to confirm the observations of Martin and Leopold, that during menstruation the mucous membrane of the tubes undergoes a change similar to that of the endometrium, though in a less degree. The same relative change in the tubes is noted during pregnancy and the puerperium. A. P. Dudley[2] has long contended that the blood of menstruation is a leakage from the ovary. With the rupture of the ovisac and the discharge of the ovum, there is a leakage of blood from the ovary, as shown by the fact that in laparotomies performed at the menstrual period about 2 oz. of blood will be found in the peritoneal cavity.

Puberty and Its Disorders.—J. M. Fothergill[3] remarks that the entrance upon the reproductive period of life in woman is almost invariably accompanied by a certain amount of disturbance of the general health; its cessation is not rarely, if not usually, accompanied by a certain amount of erotic excitement, a period of active recrudescence of the generative instinct. Both periods commonly produce such disturbances as necessitate the calling in of medical aid. The first change, or puberty, is frequently accomplished under the circumstances of rapid growth; and the double tax upon the system produces in many cases a distinct debility, which may lead ultimately to tuberculosis or other wasting disease. Commonly, there are recurring periods of lassitude, weight and sense of dragging in each groin, before the menstrual flow is actually established. Under these circumstances, it is advisable to counsel the patient to sit over a vessel containing hot water; or, if that be not sufficient, to stay in bed and have hot cloths applied to the vulva. The last is a powerful means of exciting a flow from the genitals; and is useful not only at puberty, but also at other times when the catamenia have been checked, as by cold; and it is especially useful in any arrest of the lochia. [In the last case, the application of hot cloths without delay, on the arrest of the lochial discharge, will often avert a grave condition.] If these measures are insufficient, it is usual to give iron with aloes. Fachatte's Paris thesis, 1898, is a careful study of the accidents that may occur with commencing menstruation. The ocular disturbances are the least known among them; but they are often serious. Puch reports cases of interstitial keratitis, iritis, hemorrhagic choroiditis, optic neuritis, and separation of the retina. Caudron mentions cases of double exudative choroiditis and iridochoroiditis, all consecutive to the first menses. Others report embolism from some menstrual cause; and others, hemorrhage in the anterior chamber, cured by the first menses. Schevansky has observed 6 cases of iritis and iridochoroiditis in girls with irregular menstruation; and Pargoire reports a case of iridochoroiditis developing at puberty, with constant catamenial exacerbations. In ocular affections connected with uteroovarian trouble—which are more frequent than usually supposed—Mooren[1] relieves the tenacious hyperesthesia of the retina with the following: Potassium bromid, 4 gm.; lupulin., 6.5 gm.; pulv. rhubarb, 1.5 gm.; extract. centaureæ, q. s. Make into 120 pills. Take 3 pills 3 times a day. If the ovary is the cause of the ocular troubles, he gives: Atropin. sulphat., 3 cg.; licorice powder, 2.5 gm.; extract of licorice, q. s. Make 60 pills. Take 3 pills a day. If the reflex ocular irritation depends upon some simple functional disturbance in the uterus or ovaries, he administers Paracelsus's elixir, in the dose of 2 half-teaspoonfuls a day for several weeks, in the case of robust patients; otherwise, reducing this amount to a quarter teaspoonful, or merely several drops, during the few days preceding the menses. A copious metrorrhagia may induce a serious effusion in the retina, or a neuroretinitis, which is relieved by a cold compress or ice to the back of the neck, with leeches to the mastoid epiphyses, and saline purgatives, if necessary. Local treatment is required to remove the cause in all cases.

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[1] Centralbl. f. Gynäk., No. 45, 1898.

[2] Med. Rec., July 2, 1898.

[3] Ibid., Feb. 11, 1899.

Uterine Cough.—Schäffer[2] tabulates the following: 1. In those predisposed, such as neuropaths and sufferers from genital disease (especially during menstruation and pregnancy), cough may at times be induced by isolated contact with the fornix vaginæ. 2. In those so predisposed, pathologic processes which involve the broad ligaments, and especially Douglas's pouch, may cause reflex cough, just as they cause reflex acne and hyperemesis. In the latter conditions, abnormal fermentation and autoinoculation are probably also present. 3. In those predisposed to cough, as stated above, irritation of the lower third of the vagina and vulva can occasion only local reflexes—nothing remote, such as a cough, can occur. 4. Uterine cough is produced by irritation, on the one hand, of the uterovaginal fibers of the hypogastric plexus which supply the fornix vaginæ and cervix uteri; and, on the other hand, by irritation of the spermatic plexus, the hemorrhoidal nerves, and the ganglia embedded in the broad ligament which supply the fundus uteri and ovaries. 5. Irritants which affect the nervus pudendus are at first localized in their reflex effects. 6. Reflex phenomena may be (*a*) essential physiologic reflexes in remote motor and vasomotor territories, which, through the neuropathic basis, are easily set in motion; (*b*) radiation in the case of neuropaths, in whom resistance is weakened; (*c*) irregular radiation in high degrees of neuropathy. 7. Cases of tuberculosis habitues or predominance of stomach-symptoms play a separate part in the genesis of nervous cough. 8. Local treatment, especially by pessaries, acts promptly when pathologic conditions are complicated, as in the case of retroflexion and prolapse and other conditions.

Sterility.—Romme[3] says that it is not long since that sterility was attributed invariably to women. The role is now reversed, as gonorrhea is admittedly a frequent cause of sterility in men. Numerous writers who have examined the subject claim that in a large proportion of sterile marriages the men have had gonorrhea. The explanation of this is usually found in an infection of the women. This may be the case; in others, however, it is due to disease of the seminal vesicles and ducts, causing azoospermia. This latter condition was found by Simmonds in 140 out of 1000 cadavers examined. In 2 cases of lead-poisoning and 1 of morphinism the testicles were normal. The same was true of syphilis. Of 5 cases of diabetes, spermatozoa were abundant in 4. In most chronic disorders, spermatozoa were found; but in acute cases there was suppression. In 6 cases of inguinal hernia the testicle on the same side did not contain spermatozoa. S. Cassidy[1] emphasizes the influence of coitus with white men in inducing sterility in aboriginal women. He says that it is well known in New South Wales, and established beyond doubt, that an aboriginal native woman of Australia will never bear children to an aboriginal man after she has once had offspring by a white man. It has been tried in vain to find an instance when an aboriginal woman, having returned to the black man's camp, though sound in mind and body and absolutely free from any disease whatever, and having lived there with black men whose power of reproduction was beyond dispute, did not, nevertheless, remain absolutely barren. If the diseases of civilized life were communicated to the woman before her return to the gunyah of the black man, thereby placing her *hors de combat* in the work of reproduction, the problem might be easily susceptible of solution; but it has been proved, Cassidy says, over and over again that the woman, being absolutely sound and the man entirely able, no results follow their union even under the most favorable circumstances. Should she, however, return among white folks, she conceives with evident ease. The black man does not taboo her during her stay with him; but, on the contrary, on account of her mixing with the whites, he treats her with special friendship and ardent affection. [We may add that such is also the case on the west coast of Africa, where the black woman who has lived with a white man is especially favored by the native male.]

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[1] Sem. méd., Sept. 28, 1898.

[2] Med. Rec., Mar. 11, 1899.

[3] Jour. de Méd. de Paris, Mar. 5, 1899.

Fränkel[2] reviews at length the paper of Hofmeier, who concluded that cases of sterility in women who had fibromyomas were due more to other conditions than to the tumors. He differs with Hofmeier and with those who have adopted his view, and finds evidence that fibromyomatous tumors distinctly predispose to sterility. He shows, by computing the average birth-rate of Germany and then the birth-rate of these cases, that more than one-third of the patients with these tumors have during their married life but one child; while in a series of 2000 cases of women who had other pelvic diseases, but 5% show the same comparative sterility. He believes that interstitial tumors have the greatest influence in preventing conception; next in importance are subserous; while least effective are submucous. He does not attempt to define clearly the way in which this causal relation is brought about; nor does he pretend to say definitely whether the myomatous tumor is the cause of the sterility, or whether the sterility and the conditions causing it produce the tumor.

[An allied subject to the foregoing is the recently agitated question of the **artificial sterilization of women.**] The subject of the indications that justify the sterilization of women, with a description of a new procedure for effecting that end, forms the subject of an article by P. S. Spinelli.[3] The chief conditions that render it for the woman's sake highly undesirable that she should marry, or, rather, become pregnant, are various cardiopathies, especially when associated with phenomena of asystole, however transitory; a phthisical predisposition, which, according to Stoltz, may be changed by pregnancy into confirmed disease; persistent albuminuria and chronic nephritis, in which, even if the woman escapes death, the immediate puerperal danger is greatly increased by liability to eclampsia or pernicious anemia; diabetes; chronic anemia, which, under the influence of pregnancy, frequently takes on a pernicious character; and a preexisting hereditary mental taint, which is often rendered active by pregnancy. From a social point of view, the reproduction of degenerates is also a grave question, to say nothing of the social side of procreation by syphilitics, tuberculous subjects, epileptics, and neuropathics, or those with a mental taint, hereditary or acquired. In all such cases, the author recommends surgical interruption of the uteroovarian way, so as to prevent the spermatozoids reaching the ovule, in place of oophorectomy, or the so-called Malthusian methods. [This is a subject of vital importance, and one that requires the most careful consideration. The danger is that too many operations of this kind may be performed without sufficient pathologic indications. The desire to prevent impregnation—common in a certain class of women—and the swelling of operative statistics should not act as incentives to the performance of the operation.]

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[1] Med. Council, Oct., 1898.

[2] Monatsch. f. Geb. u. Gynäk., Band 8, Heft 2.

[3] Arch. Ital. di Ginec., Oct. 31, 1898.

Amenorrhea.—Dunn,[1] from a study of scanty menstruation, formulates the following conclusions: 1. It appears to be due to a lack of proper functional activity of the glandular structure of the uterus and adnexa. 2. Anything that will stimulate the functional activity of these glandular structures will increase the menstrual flow, and give more or less marked relief. 3. Direct stimulation of the endometrium and muscular structures of the uterus, by stimulating the terminal nerve-filaments and conveying an awakening impulse to the ganglia in the uterus and adnexa, is the surest means of relief. 4. This stimulation should be only such as is necessary to give relief to symptoms. 5. Unless there be something in the uterus requiring removal, a sharp curet should never be used. 6. The difficulty of effecting a cure increases in direct ratio with the amount of injury done to the endometrium. 7. Judging from one case, stimulation such as described will relieve symptoms at any time between periods without producing at the same time any flow of blood. 8. If conclusion 7 should prove true in a series of cases, we should be justified in believing that the amount of the menstrual flow is in itself of no particular moment, except in so far as it indicates a normal activity of the glandular structures of the reproductive organs. 9. If the symptoms enumerated and the suffering endured by subjects of insufficient menstruation are due to insufficient functional activity of the glandular structures rather than to an insufficient flow of blood, is there not at least a strong probability that they are the result of a form of toxemia?

Chlorosis.—T. S. Southworth[2] remarks that in the present state of our knowledge, it is still convenient to adopt the clinical division of anemias into primary and secondary. The term "splenic anemia," though convenient, has no status, being really a mixed class. Hematologists have discarded the old term "simple anemia." He advocates the division of anemias into (1) primary and (2) secondary, or symptomatic; subdividing the first class into (*a*) pernicious anemia and (*b*) chlorosis. The anemias associated with rickets, carcinoma, tuberculosis, and syphilis are conveniently described as "chloroanemia." Chlorosis is now looked upon as a primary anemia, characterized by a marked diminution in the percentage of hemoglobin, and occurring almost exclusively in quite young women. This affection most commonly makes its appearance in the eighteenth year; and cannot be said to be very closely connected with menstruation. It is a matter of general observation that relief of constipation favors recovery in chlorosis; but this does not warrant the acceptance of Sir Andrew Clark's theory of fecal anemia. Moreover, it has been shown that urobilin, which is invariably increased in the urine when the red blood-cells are extensively destroyed, is actually decreased in the urine of chlorotics. The suggestion that chlorosis is an infectious disease rests chiefly upon the occurrence of thrombosis in exceptional cases, and the occasional occurrence of fever. The effect of bad cooking, poor or coarse food, hurried meals, long hours of work in close rooms, and change of climate should not be lost sight of; and it is well to remember that even among the better classes some of these factors may exist. In the early stage of chlorosis, there may be only a disinclination to engage in the usual pursuits or recreations, or there may be only headache. The subcutaneous fat is often increased, rather than decreased. It is usually not long before digestion is affected, and often the appetite is perverted. Some cases of chlorosis are accompanied by a mild febrile movement; but the existence of such fever should lead the physician to exclude very carefully other diseases, particularly tuberculosis, before accepting this view. The venous hum in the vessels of the neck is more commonly heard on the right side, and vascular murmurs are audible over various parts of the heart. The more diffused the murmur, the greater the probability that the heart is dilated. Dyspnea is usually a troublesome symptom; and it is increased in severity as the hemoglobin diminishes. According to the researches of Thayer and Cabot, it appears that in chlorosis there is about half the normal quantity of hemoglobin for each blood-cell present. In uncomplicated cases, there is no leukocytosis. Although there is no increase in the total number of the white corpuscles, there is at times a relative increase in the mononuclear form—the so-called lymphocytes. The water in the blood-plasma is increased; while the quantity of albumin is diminished. The treatment of chlorosis is something more than the haphazard administration of iron. When fatigue has been contributory, rest in bed may be imperative. Change of environment and stimulation of the skin by baths and massage are excellent adjuvants. The digestion will require attention, in accordance with well-known principles. The diet should be simple; milk can usually be given freely. Raw meat and eggs are also useful. The question as to whether inorganic iron is directly absorbed into the blood is still an open one; but the efficacy of the inorganic salts of iron cannot be denied. Nearly all the iron given by the mouth can be recovered in the stools. The weight of opinion seems to be in favor of the use of inorganic preparations in massive doses. An excellent combination is beta-naphtol and Blaud's pills. Relief of constipation is imperative; and for this purpose cascara and the usual saline purgatives are appropriate.

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[1] New Orl. M. and S. Jour., Feb., 1898.

[2] Med. Rec., May 20, 1899.

Arsenic alone has little effect on chlorosis; but seems to assist the action of iron. Strychnin and digitalis will promptly increase the patient's feeling of well-being. The treatment should not be abandoned as soon as the subjective symptoms have been relieved, but should be persisted in until the hemoglobin reaches or approximates the normal.

M. Manges says that in chlorosis there is almost always not only a hyperacidity, but also a hyperchlorhydria. The motility of the stomach is usually normal. This shows that forced feeding need not be feared, unless it is impossible to exclude gastric ulcer. Meynert has claimed that chlorosis is due to a disturbance of the sympathetic system, resulting from a downward displacement of the stomach and a reflex influence on the spleen. His statement was apparently supported at the time by a series of clinical proofs; but further investigation has shown that his observations were vitiated by overdistending the stomach with effervescent mixtures. Oliver has shown that in a resting person from 25% to 100% more blood circulates through the arteries; and this fact, together with the increased nutrition obtained while resting, fully accounts for the benefit to be derived from its use in chlorosis.

Menorrhagia and Metrorrhagia.—W. L. Dunning[1] mentions among the local causes of uterine hemorrhage the following conditions favoring congestion of the uterus: 1. Inflammatory conditions of the uterus or appendages—metritis, endometritis, salpingitis, oophoritis, peritonitis. 2. Obstruction to the venous flow, as in displacements of the uterus, retroversions and flexions (especially if bound down by adhesions), prolapsus, subinvolution following labor at term, abortions, lacerations. 3. Diseases of the endometrium, granular or fungous endometritis, exfoliative endometritis, polypi, adenoma, retained products of conception, hyperemia of the endometrium incident to the presence of growths or inflammation, either of the uterus or appendages. 4. Fibromyomas, especially the submucous and the interstitial forms. They largely increase the blood-supply and mechanically obstruct the venous return, and keep up a hyperemic and irritable condition of the endometrium. The nearer the tumor to the mucous membrane, the earlier and more profuse the hemorrhage. Beginning as a profuse menstruation, it may become continuous. 5. Malignant disease, when there is carcinoma of the body of the uterus; hemorrhage, for a long time, may be the only symptom. 6. Placenta prævia should be thought of when the patient is pregnant. 7. Abortion, threatened abortion, and attempted abortion must be borne in mind as possible causes of uterine hemorrhage. Married women, as well as single ones, may attempt abortion upon themselves; and, in their effort to conceal it, may deny the existence of pregnancy. 8. Extrauterine pregnancy, especially after rupture of the tube down between the folds of the broad ligament; hemorrhage may be continuous, making its exit through the uterus. The patients are usually supposed to be suffering from a miscarriage. As regards the relation of menstrual troubles to heart-disease, Guilmard[2] states that mitral stenosis is found to be most often a cause of dysmenorrhea, menorrhagia, and metrorrhagia. Next in order come mitral insufficiency and disease of the aorta. The author is said to have established the fact that menstrual troubles of cardiac origin are met with in more than half of cardiopathic patients, the cardiac trouble being first manifested at puberty. If a young girl is affected with simple stenosis, which is the most frequent cardiac affection at this age, the lesion has in most cases remained unnoticed up to this time. The establishment of menstruation is difficult; and, according to Mathieu, there are often excessive losses, amounting to veritable metrorrhagia, with dysmenorrhea. These symptoms commonly attract attention to the generative organs rather than to the heart, if there is not at the same time chlorosis.

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[1] New Orl. M. and S. Jour., Jan., 1899.

[2] Rev. méd., Oct. 19, 1898.

Castan[1] says that in the metrorrhagia of puberty, which occurs from the thirteenth to the sixteenth year, the bleeding continues almost without interruption from one period to the next. The blood is usually bright red, and flows without pain or leukorrhea. Examination shows that the pelvic organs are normal and not tender. The bleeding is the only symptom. The author attributes it to a dyscrasia due to an intoxication; and his treatment is directed to strengthening the whole organism by gymnastics, baths, etc.; while arsenic and remedies to overcome the constipation are administered internally. [In the treatment of uterine hemorrhage, **stypticin** has attracted considerable attention during the past year. It is the hydrochloric carbonate obtained from the opium alkaloid narcotin, and appears in the form of yellow crystals, which are freely soluble in water.] H. J. Boldt[2] states that both stypticin and hydrastinin augment the heart's action; but the action of the former is more like that of digitalis. In fungous endometritis and in advanced cancer, stypticin is of no benefit; but it has proved useful in hemorrhage associated with parametritis and perimetritis after abortion and full-term deliveries, and in other forms of uterine hemorrhage of obscure origin. He has observed no hypnotic effect and no unpleasant results, even from large doses of the drug. This remedy apparently has no oxytocic properties. It can be given by the mouth in doses not exceeding 4½ gr. It acts quickly and very satisfactorily when administered subcutaneously in doses of 20 minims of a 10% sterilized aqueous solution. The experiments with this remedy, carried out in Gottschalk's clinic, have shown good results, and verified the successes which Gottschalk reported to the Vienna Gynecologic Congress in 1895. The remedy acts with especial promptness in the so-called reflex (secondary) hemorrhages of the uterus. In 6 cases of threatened abortion, the abortion occurred in 4 cases very promptly after the use of stypticin. In cases of endometritis fungosa, the diseased mucous membrane must first be removed; and if hemorrhage continues after its removal, stypticin should be given. The results of its use are so gratifying that it may be used to good advantage in other suitable conditions. No injurious effects of any kind have been observed from its use. Nassauer[3] says that the drug does not act upon the muscular structure of the uterus like ergotin, but upon the vasomotor nerves of the genital tract. It is useful in all uterine hemorrhages not accompanied by gross lesion of the uterine mucous membrane; but it is of no use in fungous endometritis until curetting has been employed, or in hemorrhage after labor or abortion until all remnants of the ovum have been removed. In bleeding due to myoma, it is effective only when the mucous membrane is intact; although it strikingly mitigates the pains of the menstrual period or abolishes them altogether. It is efficient against hemorrhages caused by tumors of the adnexa, or by inflammation or congestion; and against those of chlorosis and phthisis, as well as those of the climacteric. To secure its immediate action, 3 gr. should be injected deeply into the gluteal muscles.

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[1] Centralbl. f. Gynäk., Jan. 14, 1899.
[2] Med. News, Apr. 8, 1899.
[3] Centralbl. f. Gynäk., Apr. 22, 1899.

Hertoghe[1] has established the fact that women **deprived of the thyroid gland** are subject to excessive menstrual discharges; as they grow older, the menses last longer and longer, and finally become almost a constant flow. He has also noted that a hypertrophied thyroid is always accompanied by an early and copious mammary secretion. He has established, by tests on milch cows and other animals, that the secretion of milk is much increased following the injection of thyroid extract. He summarizes the results of much study in the following statements: Myxedematous hemorrhage is directly amenable to thyroid treatment; and also hemorrhages due to even an old endometritis or ovaritis. Every menorrhagia is favorably influenced by thyroidin. Cancerous hemorrhages cease after 3 or 4 days of thyroidization. The pain, swelling, and congestion also decrease to a noticeable extent. Thyroid treatment is especially indicated in cases of frequent abortion, in which the menstrual flow is so excessive that it sweeps away the impregnated ovum. He cites an instance of a woman who was able to conceive and bear a child, thanks to thyroidin, after many years of sterility. Thyroidin is also useful in cases of uterine myoma, prolapsus, or retroflexion with hemorrhage, and, in general, in all cases in which it is necessary to reduce the size, sensibility, or congestion of the uterus. On account of the peculiar action of thyroidin in stimulating the lacteal secretion, it should be administered if this secretion seems to be diminishing.

Dorland,[2] from a review of thyroid therapy in gynecology, and the results obtained in his own practice, concludes as follows: 1. The thyroid gland, in addition to its general effect upon the metabolism of the body, exerts an inhibitory action upon the pelvic genital organs, and upon the uterus in particular. This action seems to be especially marked upon the epithelial elements of the endometrium. 2. As a result of this inhibitory or vasoconstrictor action, there follows a retardation of hemorrhages from the uterine mucosa. 3. This action is directly antagonistic to that exerted upon the uterus by the ovarian secretion. 4. In cases in which this conservative influence is deficient or absent, it may be restored by the ingestion of fresh thyroid gland or desiccations or extracts of that organ. 5. In gynecology, thyroid therapy is especially indicated in hemorrhagic affections of the uterus and in all forms of pelvic congestion, notably in uterine fibromas, hemorrhagic endometritis, menopausal hemorrhages, and chronic tubal disease. 6. The best results may be expected in fibromas and pathologic conditions of recent development. The more chronic the case the more rebellious will it prove to thyroidization.

Dysmenorrhea.—Von Oswiecimski[3] recognizes 3 forms of dysmenorrhea: 1. The inflammatory, which is due to the inflammation of the uterus itself, its adnexa, or the neighboring organs. 2. The nervous, caused by hyperesthesia of the uterine mucous membrane. 3. The mechanical, dependent upon some obstruction which prevents the flow of blood to and from the uterus. Under this category he mentions hypoplasia uteri, stenosis of the cervix, anteflexion of the uterus, and closure of the internal os. Lawrence[1] concludes as follows: 1. Painful menstruation is not a disease, but merely a symptom found in various pelvic diseases. 2. Those classifications which place it as a disease are misleading, and should be discarded. 3. The physiology of menstruation, a thorough knowledge of pelvic pathology, and a broad, careful habit of study and thorough case-taking are necessary in order that menstrual pain be rightly construed. 4. Many of the cases due to the uterus, tubes, or ovaries may be cured in the early stages by simple means; whereas neglect places them in a position demanding serious operative treatment. 5. Painful menstruation in a sterile patient is strong evidence that there is tubal inflammation, with occlusion of the tubes. 6. Operative procedures should be reserved for those cases in which there is a positive pathologic indication, neurotic and anemic cases being treated by other and more appropriate measures. 7. As a symptom, menstrual pain is often of such grave import that it should always receive the most painstaking study. If this should be the rule, many patients will be cured without operation. J. M. Fothergill[2] says that the treatment usually adopted in all countries is to give alcohol with hot water under these circumstances. The relief so afforded is often very great, so much so that the late Sir James Simpson asserted that this constituted the worst feature in the treatment. The relief afforded by alcohol in this condition, he asserted, was one of the most common causes of ultimate excessive indulgence in alcohol by women. Having learned to resort to it, he declared they were led to resort to it at other times; and he advocated strenuously the use of any other stimulant than that which is at hand on almost any sideboard. Sal volatile, spirit of chloroform—anything, indeed, but alcohol—he advised as being equally efficacious and free from the dangerous allurements of the other.

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[1] Rev. méd., Jan. 4, 1899.

[2] Therap. Gaz., July 15, 1899.

[3] Klinisch-therap. Woch., June, 1898.

The Menopause.—For menorrhagia occurring at the menopause—always to be regarded as a dangerous symptom—Orloff[3] employs intra-uterine injections of equal parts of a solution of alumnol in alcohol and tincture of iodin (each 50%), after previous thorough disinfection of the vagina. The result of this treatment in every instance was to arrest or diminish the hemorrhage, menstruation afterward occurring normally. The results are less marked in cases of fibroids; although the bleeding is certainly checked. The injections are usually repeated at intervals of 2 or 3 days, the patient being kept in bed for at least 2 hours afterward. Dorland[4] gives a summary of the literature of ovarian therapy in gynecology, and formulates the following statements as a result of his studies and experimentation: 1. The ovaries, in common with other glandular organs of the body, exert an occult, but very positive, influence upon the general organism. 2. When this influence is removed, either by the natural atrophy of the glands at the climacteric, by destruction of the ovarian stroma from pathologic processes, or by extirpation of the organs, there results a series of distressing phenomena, including hot and cold spells, nervous and mental manifestations, and neuralgic attacks. 3. The administration of ovarian substance, or of the extract of ovarian tissue, is promptly and very generally followed by a marked amelioration of these symptoms.

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[1] Internat. Jour. Sur., vol. x., No. 30.

[2] Med. Rec., Feb. 11, 1899.

[3] La Gynéc., No. 2, 1898.

[4] Therap. Gaz., Apr. 15, 1899.

4. The average dose required varies from 2 to 5 gr. of the extract, administered thrice daily. 5. Excessive doses of the remedy will be followed by cardiac and nervous manifestations, necessitating a diminution in the dose administered, or a complete, though temporary, change of treatment. 6. In some cases there appears to be developed a tolerance to the remedy, whereby its effects are diminished in intensity. For this reason, it is better to begin with small doses, and gradually increase the amount as may be indicated in the given case. Seelignann[1] reports 15 cases treated by extract of the ovaries of sheep and pigs. He divides these into 2 classes: those in which the ovaries had been removed, and those in which various disturbances attended diminished ovarian activity, both in young women and in patients at the climacteric. He decides that the remedy has a decidedly beneficial action, not only upon typical climacteric phenomena, but also upon the psychic depression and constitutional affections (such as gout and psoriasis), which, after long remaining latent, develop at the time of the menopause. In 3 cases of Basedow's disease the effect was quite marked. From chemic analysis of human ovaries he is led to the conclusion that it is not improbable that an iodin compound like iodothyrin may be isolated from the ovary.

UTERINE INFLAMMATION.

Etiology of Leukorrhea.—According to R. Waldo,[2] the causes of leukorrhea may be divided into 2 classes—constitutional and local. Constitutional causes are anything that lowers the individual's general vitality, as any acute or chronic disease, such as fevers, rheumatism, gout, syphilis, anemia, and chlorosis. Local causes are vaginitis, simple or specific; endometritis, cervical or corporeal; salpingitis, when the products of the inflammation escape into the uterus and thence out; polypi; fibroids; excessive coitus; ulcerations, simple, specific, and malignant; uterine displacements. When it is, strictly speaking, of inflammatory origin, the discharge is constant; though at times it may be much more profuse than at others; but when it is due to a relaxed condition of the mucosa, it is very much increased, and often is present only shortly before and a few days after the menstrual flow, or when the patient has been subjected to some unusual physical or mental strain.

Chronic Endometritis.—A. Lea[3] finds that chronic endometritis occurs in several distinct forms, viz.: 1. Glandular endometritis, in which there is great hypertrophy of the glands. 2. Interstitial endometritis, in which the most extensive changes are met with in the connective-tissue stroma, which is infiltrated with round cells. 3. Villous or polypoid endometritis, in which there is a combination of the first 2 varieties.

Endometritis Dolorosa.—[Certain women suffer from continuous pain in the region of the uterus, increased by effort, ascribed by some gynecologists to pelvic neuralgia connected with some slight lesion of the uterus; by others, to general neuropathy, but resisting all treatment based on these premises.] V. T. Sneguireff[4] has been studying 9 cases (from 22 to 46 years of age; all had born children), and finds that the pain is localized at 5 points on one or both sides, the emergence of the two branches of the iliohypogastric nerve, or the anterior external femoral cutaneous nerve, of the external spermatic nerve, and of the ilioinguinal nerve. There may be radiations to the hypogastric, renal, and solar plexuses, to the intercostal spaces, to the precordial region, and, in cases complicated with lesions of the adnexes, to the sacroiliac symphysis, along the sciatic, and to the lumbar and dorsal regions; but the 5 points mentioned, and especially the first and last, differentiate endometritis dolorosa. There is little, if any, leukorrhea. The menstrual flow is normal in amount, but is accompanied by a more or less intense dysmenorrhea. The cervix, although congested and livid, is but slightly modified as to shape or consistency. Exploring the uterus with a sound is sometimes so painful as to cause syncope or convulsions. He considers the affection an inflammatory lesion of the uterine mucosa, localized especially in the fundus, at the internal orifice and openings of the tubes, producing phenomena of painful spasm similar to those produced by fissure of the anus when there is neuropathic predisposition. The treatment is indicated by this analogy; and he has found his views confirmed by the invariable success attained by dilating the cervix and tamponing with iodoform gauze, repeated at intervals until the entire disappearance of the symptoms, which soon follows in noncomplicated cases. The dilatation is accomplished with Hegar bougies; and should be pushed as far as possible, and the gauze left as long as possible, with anterior sphincterian hysterectomy in case of stricture.

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[1] Allg. med. Centralzeitung, No. 3, 1898.
[2] Med. Rec., Oct. 8, 1898.
[3] Med. Chron., No. 2, 1898.
[4] Sem. méd., Feb. 8, 1899.

Treatment of Endometritis.—1. Medicinal Treatment.— Orthoform has been used in gynecology by R. Blondel,[1] in 9 cases of uterine dilatation, with considerable success, the pains being in nearly all cases entirely obviated. The author has also treated 50 cases of endometritis with complete success and entire painlessness, and without interfering with the ordinary employment of the patients. The cotton wicks used as tampons were impregnated with glycerin, to which a few gm. of powdered orthoform had been added; the local analgesic effect lasted for 24 hours, until a renewal of the dressing was made, a cure always ensuing in from 3 to 5 weeks. Equally good results were also obtained after curetting, necessary in fungous endometritis. It was found, too, that curetting could be accomplished without general anesthesia, by applying a dressing of orthoform an hour before the operation, which was rendered quite painless by this means. In the treatment of the urinary tract, the results were variable, due, most likely, to the complete insolubility of the orthoform in the alkaline fluids present in it.

As lactic acid is a normal constituent of the vaginal secretions, Sneguireff[2] assumed that it might prove a natural antiseptic for the vagina, and applied it in metritis in injections of a 3% solution, or painted the uterine mucosa with a 50% solution. The result was always favorable, and there were no inconveniences from its use. Dalche has modified this method, and finds extremely effective the application to the cervix of tampons dipped in 3% lactic-acid glycerin, once a week, with daily irrigation with warm water. The application is almost painless, does not interfere with the patient's occupation, and usually rapidly improves the leukorrhea. For an old, torpid metritis, he paints the cervical ulcerations with a 50% solution.

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[1] Rev. de Thérap. med.-chir., vol. lxv. p., 325.

[2] Münch. med. Woch., Jan. 3, 1899.

H. T. Hanks[1] renews his favorable opinion regarding nosophen in gynecologic work. After an experience of nearly 4 years with nosophen, he believes that it has virtues equal to those of iodoform. It has the additional advantage of being free from odor. He commends it for its efficiency in preventing excessive and rapid suppuration in all abrasions and on all raw surfaces after curettage, when this procedure is applied for endometritis or for removing the debris of an abortion. Nosophen gauze is also efficient as a dressing for abdominal wounds.

Hardwicke[2] has used quinin topically in several cases of simple leukorrhea, always with great success. It may be used in the form of a douche or pessary, preferably the latter. He prescribes 3 gr. of the hydrobromate in a half-dram pessary, in combination with oleum theobromatis. One insertion a day is generally sufficient. R. S. Miller[3] employs this substance in the treatment of leukorrhea, granular erosion of the cervix, vaginitis, and septic endometritis. He says that the drug is a powerful antiseptic and is slightly astringent. As an intrauterine douche, it has proved to be unirritating and free from toxic effects. He has largely employed pessaries containing 2 or 3 gr. of the muriate, combined with extract of hamamelis. For douching, 1 gr. to the ounce of warm boric-acid solution is employed, the same strength being used in douching the bladder.

Silvestri[4] draws attention to the value of potassium iodid in the treatment of fungous endometritis and the metrorrhagia of uterine fibroids. He records 5 cases, in each of which, with 1 doubtful exception, syphilis could be excluded, where the administration of moderate doses of potassium iodid brought about a cure. The author further recommends the use of this drug in habitual abortion when threatening, or as a prophylactic agent. The mode of action is somewhat uncertain; it may be by the virtue of its absorbing powers, or through improving the state of the blood, depressing the heart, and, as an aphrodisiac, moderating the function of the genital organs, and thence the reflex congestion.

A. G. Cipriani[5] recommends solutions of argentamin in all cases of leukorrhea caused by gonorrheal infection; in all cases of vaginal, cervical, and uterine catarrh accompanied by a mucopurulent or purulent discharge; and in discharges due to malignant growths of the genital apparatus.

2. Endometrectomy.—By this name, Casati[6] has introduced a process of extirpating the entire mucosa of the uterus through the abdomen and incised uterus, as a last resort in cases of hemorrhagic endometritis, and still save the organ. A. Dührssen has performed the operation 4 times, but by the vaginal route. After incising the anterior vaginal vault, the anterior cervical wall is exposed, and the peritoneum detached from the anterior fundal wall (extraperitoneal method), or the fold incised (intraperitoneal method). The anterior wall of the uterus is incised as far as the fundus. A transverse incision is then made, and the mucosa of the uterus and of the cervix excised, and the incisions sutured in turn.

3. Vaginal Douching.—Byron Robinson[7] is advocating the vaginal douche as a therapeutic measure. When properly used, it is capable of doing a vast amount of good. Its utility depends upon the amount of fluid, the degree of heat, the composition of the douche, the position while taking it, and on the method of using it. A couple of quarts of warm water are worthless as a douche. The author gives the following directions: 1. Use a fountain-syringe holding 4 gallons of water, with a 4-foot head. 2. Begin (for married women) with 3 quarts of boiled water at 103° F. 3. Increase the heat 1 degree at each sitting, until it is as hot as can be borne. 4. Increase the amount of the douche 1 pint each time, until 4 or 5 gallons are taken. 5. Use the douche in the morning, and in the evening when retiring. 6. The duration of a 4-gallon douche should be 30 minutes. 7. The patient should lie on the back, with the thighs flexed on the abdomen and the legs flexed on the thighs. 8. The douche should be taken on a level plane, an ironing-board serving a good purpose, and not in bed, or on a water-closet, or in a bath-tub. 9. The douche should never be taken in the standing or sitting posture. 10. A handful of salt and a teaspoonful of alum may be added to each gallon of water—the salt to prevent reaction, and the alum to astringe and check waste by secretion. 11. The vaginal tube used in giving the douche should be sterilized; and every patient should, of course, have her own tube. The good effects of the douche may be summarized as follows: 1. It contracts the tissues (muscular, elastic, and connective). 2. It contracts the vessels (arteries, veins, and lymphatics). 3. It absorbs exudates. 4. It checks secretions. 5. It stimulates. 6. It relieves pain. 7. It cleanses. 8. It checks hemorrhage. 9. It curtails inflammation. But it must not be forgotten that the douche may also have evil effects, and those are: 1. It may check normal secretions, and thus induce abnormal germ-growth. 2. It may congest the organs. 3. It may irritate the parts. 4. It may produce disagreeable sensations. 5. It may aid in the rupture of a pyosalpinx or an extrauterine pregnancy.

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[1] Am. Gyn. and Obst. Jour., Dec., 1898.

[2] Lancet, Jan. 7, 1899.

[3] Ibid., Jan. 21, 1899.

[4] Gaz. degli Ospedali, Nov. 20, 1898.

[5] Therapist, Feb. 15, 1899.

[6] Centralbl. f. Gynäk., No. 50, 1898.

[7] Med. Rec., No. 5, 1898.

Dudley[1] thinks the douche acts in a twofold way—as a vasomotor stimulant and as a cleansing agent. The chief indications for its use are in the treatment of chronic pelvic inflammations; the power of heat to stimulate and contract the bloodvessels makes it a useful means of arresting uterine hemorrhage. The author deprecates its too frequent and indiscriminate use, as the washing away of the normal vaginal germs makes this canal a less difficult barrier for disease-germs to pass, and "therefore opens the way for infection in the higher zones of the pelvis."

4. Vaporization.—An editorial in the *Lancet* of Sept. 24, 1898, remarks as follows: During the 4 years which have elapsed since Sneguireff first proposed the use of superheated steam for the arrest of hemorrhage, a good deal has been written upon the employment of this agent in the treatment of bleeding from the interior of the uterus. Among others, Pincus of Dantzig has used this mode of treatment, with very encouraging results. He has perfected two methods of carrying it out, which he terms respectively *atmocausis* and *zestocausis*. In the first, the steam is applied directly to the interior of the uterus by means of a double-channelled intrauterine catheter (*atmocautery*) provided with fenestras in both tubes; in the second, the steam is employed to heat the outer tube, which is unfenestrated, and which then acts as a cautery (*zesto-cautery*), and can be applied to any part of the uterus which it may be desired to treat. The intrauterine application of steam is not without its dangers; and the fact that the result aimed at in certain cases is total obliteration of the uterine cavity, shows what it is capable of effecting, and, at the same time, what disastrous results may follow if it be not carefully used. Two cases of unintentional obliteration of the uterus have been recorded: 1 by Baruch, in which the method was employed to arrest secondary postpartum hemorrhage; and 1 by Otto von Weiss, in a girl, aged 19 years, in which steam at 100° C. was applied for three-quarters of a minute to the interior of the uterus, for the arrest of profuse menorrhagia. The duration of the action should be from 10 to 30 seconds. If total obliteration of the cavity be desired, it must be continued for from 2 to 3 minutes. The steam, generated in a vessel furnished with a safety-valve, is used at from 100° to 115° C. Preliminary dilatation of the cervix is necessary in all cases; and if the action is to be limited to the interior of the body of the uterus, gauze must be bound round that portion of the tube which will lie in the cervical canal. The vagina is protected from burning by a short tubular wooden speculum. The applications should not be repeated oftener than once a month, that length of time being required to regenerate the mucous membrane. The period of time that elapses before the destroyed mucous membrane separates is an indication of the depth to which the cauterization has extended; if it be merely superficial, the interval is usually from 6 to 10 days. The method is recommended for all forms of endometritis, subinvolution of the uterus, for disinfection of the uterine cavity, in cases of inoperable carcinoma of the body, in climacteric hemorrhages, and in senile catarrh. In the 2 latter instances, it may be used to produce total obliteration of the cavity of the uterus; and it is suggested that this may replace in some cases total extirpation of that organ. It is contraindicated in cases of suspected malignancy, in affections of the appendages, and in cases of markedly rigid cervix (Pincus).

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[1] Phila. Med. Jour., June 18, 1898.

5. Curettage.—McMurtry[1] claims that the size of the uterus, the character of the discharge, and the condition of the mucosa should be closely considered in giving a prognosis in a case of endometritis. If the endometrium has become thickened, soft, and friable, and a mucopurulent secretion is present, a prompt recovery will attend curettage. Curettage is not advised if additional foci of infection are found in the appendages. Any necessary plastic surgery upon the cervix should be done at the same sitting with the curettage. Careless and incomplete use of the curet is considered the greatest abuse of the minor gynecologic operations. Its reckless use is capable of far-reaching danger. Many cases of diseased appendages date from the use of the curet in some minor disease. After curettage, McMurtry advises that the cavity be irrigated with hot sterilized water, and an aseptic dressing be applied to the vulva. Gauze packing of the uterus is not advocated, as it does not facilitate drainage, but causes considerable pain, owing to the uterine contraction it excites. No chemical should be used either before or after the operation.

Zinc Chlorid or the Curet in Chronic Metritis.—Delbet[2] seems determined to rehabilitate this once popular chemical, and holds that the curet is a far inferior therapeutic agent in chronic metritis. Zinc chlorid never causes any aggravation of an inflammation of the appendages which may complicate metritis; the curet often does so. The curet requires anesthesia and confinement to bed; the application of zinc chlorid permits the patient, according to Delbet's experience, to go about with impunity directly after the injection. Delbet uses the salt in solution, about 20%, 10% being too weak, and 50% too strong. About a dram of the solution is injected by means of an appropriate syringe into the uterine cavity; at the same time the vagina is irrigated with a boric-acid solution, or with hot water sterilized by previous boiling; then a tampon is applied. At least 3 injections will be needed; at first at short intervals, 2 or 3 days; later, about once a week to once a fortnight. The action of the solution is not more destructive to tissues than the use of the curet; and is much less objectionable than the introduction into the uterus of the same salt worked up into a crayon. Atresia of the cervix has frequently followed the use of crayons; but Delbet admits that, as yet, none of the patients treated by his new method has become pregnant.

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[1] New Orl. M. and S. Jour., May, 1899. [2] Ann. de Gynéc. et d'Obstét., Jan., 1899.

Tuberculosis of the Uterus.—Vassmer[1] has had an opportunity to observe 6 cases of tuberculosis of the uterus at the dispensary for women in Göttingen, during a period of 10 months, and he regards the trouble as not nearly so rare as do some other writers on the subject. Four of these patients were in the third decennium; while 2 were older. The symptoms were chiefly pain in the pelvis and sacrum, without hemorrhage or discharge. The uterus was found to be more or less enlarged, according to the extent of the disease. The mucus from the cervix was not found to contain tubercle-bacilli. The diagnosis was made by microscopic examination of scrapings from the body of the organ. The treatment was by curetting, and intrauterine application of tincture of iodin in mild cases; and by removal of the diseased portions of the genital organs in the more advanced cases. The tubes, one or both, were affected in 4 of these 6 patients; in the other 2 they were apparently free. The results of treatment were satisfactory, the only patient who did not survive being 1 with extensive abdominal and pulmonary tuberculosis, upon whom nothing more than an exploratory incision was made.

UTERINE DISPLACEMENTS.

Uterine Prolapse.—Doléris[2] relates the tenth recorded case of congenital prolapse of the uterus and vagina associated with spina bifida. The integument over the spina bifida was sloughing when first inspected, a few hours after birth, so that it leaked whenever the infant cried. The anus was represented by a narrow partition-slit. The vulvar structures were normal; but whenever the infant screamed, the vaginal part of the cervix, greatly hypertrophied, elongated, and vascular, protruded from the vulvar cleft. The os externum formed a transverse slit, and there was ectropium of the mucous membrane of the cervical canal. There was also bilateral talipes equinovarus. Three days later, when the infant died, the uterus and vagina were completely prolapsed. At the necropsy, the bladder appeared in its normal situation, held up by the urachus and peritoneum. Its walls were hypertrophied. The body of the uterus was well developed, and lay deep down in the lowest part of the pelvic cavity. The round ligaments were stout and thick; they ran upward from the uterus to the internal abdominal ring, where they were lost in the tissue of the peritoneum, as they did not enter the inguinal canal. The broad ligaments were normally developed. The uterosacral ligaments were modified, like the round ligaments. They were of a silvery-white color, and ran upward from the uterus, flat against the posterior pelvic wall, to end, not by a firm attachment to the lower lumbar vertebras, but by simply being lost in the tissue of the mesorectum. That serous fold, on the other hand, was stretched, and there was prolapsus recti. The entire uterus measured 55 mm.—body, 15 mm. (or over ½ in.); supravaginal part of cervix, 12 mm.; vaginal portion, 28 mm. (or over 1 in.). On drawing up the prolapsed uterus, the vaginal canal was restored to its normal appearance, and measured a little over ½ in. in length. Trophic lesions must have played a larger share than intraabdominal pressure in causing the prolapse. [It is remarkable that in the aged, in whom the reverse is most probably the case, the bladder shares more or less in the prolapse; while in this deformed infant it remained entirely in its place.]

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[1] Arch. f. Gynäk., vol. lvii., p. 301.

[2] Bull. et Mém. de la Soc. obstét. et gyn. de Paris, No. 5, 1898.

Cystocele.—According to Lowson,[1] cystoceles may be divided into 3 classes: 1. Prolapse of bladder, without descent of uterus. 2. Prolapse of uterus and bladder, the uterovesical connection being normal. 3. Prolapse of both organs, with stretching of uterovesical connection. The symptoms are: Backache, partial vaginal obstruction, frequent micturition, associated later with cystitis, owing to decomposition of residual urine. To remedy cystocele, something more than mere elevation of the uterus is required. The bladder is supported by the urachus and the hypogastric cords; but the attachment of the former is weak and unreliable, and cannot be depended upon in any operation. The hypogastric cords, on the other hand, though varying greatly in their position and arrangement, are often very thick and strong, and can be made use of in an operation for raising the bladder. The usual operation consists in making a median incision just above the pubes, about 3 in. long, down to the subperitoneal fascia; strong retraction of the sides of the wound and a search for the hypogastric cords. They can be generally felt as thickened structures about 2 in. above the pubes, and separated by about 1 in. When found, they must be dissected out and put on the stretch; the bladder will be found to be raised by this procedure; they are then stitched in their new position and the wound closed. The result is fairly satisfactory; but in operating on a succession of cases, it was found that these fetal structures were not always present, or strong enough when found; it was therefore necessary to devise some improvement in the operation. The improved operation is conducted as follows: Median incision and retraction of the sides of the wound; transverse division (1½ in.) of peritoneum about midway between umbilicus and pubes; then, cutting from above downward and outward, a triangular flap of peritoneum is raised, which contains the urachus and hypogastric cords. Anteriorly, the hand is passed down between the pubes and the front of the bladder, separating that organ freely. By pulling on the triangular peritoneal flap, the bladder is readily raised, and maintained in its new position by suturing the peritoneum to the neighboring structures. The author states that in a series of 25 cases the results have been most satisfactory.

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[1] Brit. Med. Jour., July 23, 1898.

Treatment of Prolapsus.—Wertheim[1] conceived the idea of applying to cases of prolapse the principle of drawing down the uterus into the vagina and utilizing it to close a vesicovaginal fistula, as suggested by Freund. A transverse incision is made in the anterior fornix, the vesicouterine fold of the peritoneum is opened, and the fundus uteri is drawn through the opening, each angle of the wound being sutured to the cervix. An oval denudation is then made on the anterior vaginal wall, extending from a point just above the meatus urinarius to ½ in. below the transverse incision. The posterior surface of the corpus uteri is then denuded, and is united to the edges of the vaginal wound. In the 2 cases reported, the operation required from 25 to 45 minutes; the convalescence was afebrile, and the preexisting vesical disturbances were at once removed. The anterior surface of the uterus underwent a process of granulation, and fresh epithelium developed. The organ diminished in size, and eventually presented only the condition of acute anteflexion. Kolpoperineorrhaphy should be performed, in order to furnish additional support.

With the object of producing adhesions, and thus strengthening the broad ligaments, Parsons[2] practises injections of solutions of quinin for the correction of prolapse of the uterus. The patient is placed in the lithotomy-position, the vagina is thoroughly douched and rendered as aseptic as possible, the perineum is retracted with a Sims or an Auvard speculum, another retractor being used to hold up the anterior wall of the vagina if necessary, and the lateral walls are exposed. The uterus is held as nearly as possible in its normal position with one hand, by means of a probe passed into its interior. With the other hand, the injections are made on each side, through the vaginal wall, into both broad ligaments, on a level with the external os, and from about ¾ in. to 1 in. from the junction of the vagina with the cervix. After the syringe and speculum have been withdrawn, it is necessary to keep the uterus up with a cup-and-stem pessary, held by 4 tapes tied around the waist, and left in position 3 or 4 days. A special syringe, with a long, thin nozzle, is a great convenience, because it does not obstruct light, and enables the operator to see that the needle-point pierces the vaginal wall at the right place. The needle should not be more than 1 in. in length, nor much thicker than a hypodermic needle, in order that the puncture may close quickly. [Such methods are dangerous, and should be mentioned only to be condemned.]

Retrodisplacements of the Uterus.—Abel[3] claims that the most important point in the prevention of retrodisplacement is the proper care of the puerperal woman, since Winter affirms that this condition is present in 12% of primiparas. The critical period is the beginning of the second week, when the degeneration of the muscular fibers has advanced, and before the connective tissue has regained its elasticity. Instead of stimulating the intestines by liberal diet, it is the custom for the medical attendant to keep the puerperal woman on fluids, resorting to the frequent use of laxatives. The writer criticises the American (?) custom of allowing patients to use the commode on the fourth day after delivery. On the other hand, he does not agree with Schatz, that it is desirable to keep them in bed for 2 or 3 weeks, until the pelvic floor regains its tone. Every puerperal woman should be examined, in order to determine if her uterus is in its normal position. Gottschalk advises the use of a pessary as early as the seventh day after delivery, if there is a tendency to retrodisplacement, the patient being kept in bed 3 or 4 weeks. If a pessary is introduced, it should be as small as possible, in order not to cause overstretching of the vagina. He would have the patient lie on her side as much as possible, and empty her bladder every 4 hours. The writer believes that long-standing retroflexion of the uterus, which has given rise to no symptoms, may cause profuse hemorrhage at the time of the climacteric and delay its establishment. This may be prevented by the timely use of a pessary. Quoting statistics to show the relative frequency with which retroflexion followed removal of the tubes and ovaries, the writer infers that it is not sufficient to separate adhesions, but the uterus should be fixed in a normal position by some procedure. In 26 cases in which conception followed the removal of one tube and ovary, the uterus became retroflexed in 50%; in others, spontaneous reposition of the retrodisplaced organ occurred during the course of pregnancy.

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[1] Centralbl. f. Gynäk., No. 14, 1899.

[2] Lancet, vol. i., No. 3936.

[3] Centralbl. f. Gynäk., No. 30, 1898.

Nonoperative Treatment of Retrodisplacement.—W. H. Rumpf[1] says that **massage** is the most valuable adjuvant we possess in the treatment of retroflexions of the uterus. About 50% of the cases require no other form of treatment. The remainder are prepared for the use of pessaries or for operations. Symptomatically, all cases may be relieved. Massage of the bowels should be performed in all cases in which constipation is present. [Our position as regards pelvic massage is well known. It is practically useless in the vast majority of pelvic cases; and, even in the best of hands, is apt to prove morally deleterious to the patient's welfare.]

The use of **pessaries** has commanded considerable attention from gynecologists during the year. J. W. Bovee[2] states that the indications for the employment of a pessary are: First, in cases of relaxed or injured pelvic structures, as vaginal walls, perineum, the uterine body, mucosa, or ligaments, that for practical reasons surgical relief cannot be practised; and, secondly, as an auxiliary to other forms of treatment, as gymnastics or other forms of exercise, tonics, or surgical procedures.

Among the contraindications to the use of the instrument, A. Giles[3] holds that, whatever the malposition of the pelvic organs, a pessary should not be introduced unless the malposition gives rise to symptoms. In the case of unmarried women, pessaries are undesirable, except when symptoms are severe and there is a strong probability of cure by their means. Inflammatory conditions of the genital organs contraindicate the use of pessaries, pain and irritation ordinarily resulting. This applies to endometritis and erosion, as well as to pelvic cellulitis, ovaritis, and salpingitis. When the uterus is fixed, pessaries are harmful as well as useless, since no pessary can overcome adhesion. Regarding the dangers of neglect, harm is produced in 1 of 3 ways: Misfit, sepsis, or narrowing of the vaginal orifice.

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[1] Am. Gyn. and Obst. Jour., Mar. 8, 1899.

[2] Va. Med. Semi-monthly, July 8, 1898.

[3] Med. Press and Circ., vol. cxvi., No. 16.

According to E. C. Dudley,[1] the pessary is always contraindicated until the uterus has been replaced. Failure of replacement will cause it to press upon the sensitive uterus, and 1 of 3 unfortunate results may occur: 1. The pessary may not be tolerated, on account of pain. 2. It may be forced down, by pressure from above, so near to the vulva that it will fail to do the least good. 3. The uterus, finding it impossible to hold its position against the pessary, instead of taking the proper position, may be bent over it in exaggerated retroflexion, with the cervix between the pessary and the pubes; or the whole organ may slip off to one side of the instrument into a malposition more serious than the one for which relief is sought. A properly adjusted pessary gives to the patient no consciousness of its presence. If the instrument causes pain, it should be removed and search made for the tender places; it should then, if possible, be remoulded into such shape that it will not make pressure upon them. Often a slight indentation at some point will enable the patient to wear it with comfort. If it cannot be made comfortable, it is contraindicated, and should be abandoned. If relief is not obtained by an instrument which holds the cervix near the hollow of the sacrum, mechanical support is, generally speaking, contraindicated.

Byrne[2] urges the importance of using a properly shaped pessary, and shows a sample of the correct form and a dangerous pessary of the Smith-Hodge pattern.

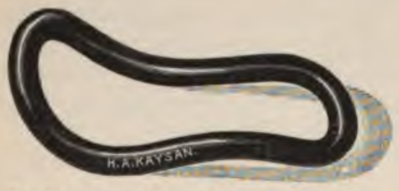

FIG. 63.—Correct form of pessary (Brooklyn Med. Jour., Dec., 1898).

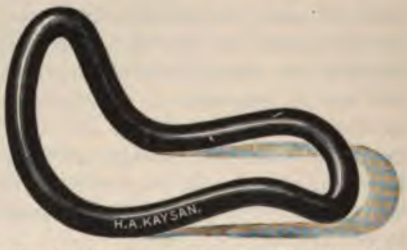

FIG. 64.—A dangerous pessary (Brooklyn Med. Jour., Dec., 1898).

Operative Treatment of Retroflexion.—S. Pozzi[3] divides retrodeviations into 2 general classes: the free and the adherent. Free retrodeviations he again subdivides into 2 general headings: 1. Free, movable retrodeviations. They are relatively rare, and are caused by laxity of the ligaments; this retrodeviation is not constant, but is the generally occupied position of the uterus. 2. Free retrodeviations which can be made movable. This condition is found most frequently in multiparas; the anatomic examination shows a large corpus uteri with a flexible cervix. In both of these classes of retrodeviation, the extraordinary movability of the uterus, and not its malposition, is of main importance. The uterus must be made more stable, which condition can be fulfilled only by putting the uterus in normal position. When the uterus is thus replaced, it must be fixed there; but not by means of vaginofixation or ventrofixation. If a metritis exists, curettage should be done; if the perineum is weak, an operation to strengthen it should be performed. As means of fixing the uterus *per se*, pessaries and abdominal binders are of importance and value. Pozzi places in a separate division the movable retrodeviations with diseases of the adnexa. Laparotomy, with eventual ignipuncture or resection of the ovaries, is here to be thought of. If both ovaries have been removed *in toto*, fixation of the uterus is not necessary. If the adnexa of but 1 side have been removed, the stump can be sewed in the lower angle of the wound. If only ignipuncture or resection of the ovaries has been resorted to, then a ventrosuspension may be done; though it is by no means absolutely necessary. Fixed retrodeviations: In order to diagnose between this condition and movable retrodeviations, bimanual reduction in the knee-elbow position must be tried; if this does not succeed, the same attempt must be made under narcosis. The vagina is held open by a speculum. If the uterus is diseased, appropriate treatment must be instituted; if the adnexa are diseased, laparotomy and conservative treatment are necessary. Laparotomy is performed, not to tear the adhesions, but because of the diseased adnexa. When the uterus and adnexa are freed, the ovaries and tubes are to be examined; it is generally impossible in these cases to treat all adnexa conservatively. If at the same time the uterus is very much diseased, it should be removed with the tubes and ovaries.

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[1] Jour. Am. Med. Assoc., Feb. 4, 1899.
[2] Brooklyn Med. Jour., Dec., 1898.
[3] Med. Rec., Sept. 10, 1898.

Vaginal Operations.—*Vaginal Fixation.*—Gottschalk[1] reports 14 cases of retroflexion treated by intraperitoneal fixation through the vagina. After replacing the uterus (all adhesions being broken up by posterior vaginal section), the cervix is drawn backward and held by an assistant, while the bladder is separated as in vaginal hysterectomy. After incising the peritoneum, the uterovesical fold of peritoneum is seized with forceps and drawn down over the anterior surface of the uterus, to which it is sutured as low as possible, the fundus being drawn through the opening. The peritoneal and vaginal wounds are then closed. The uterus is held in its normal position, and retains its normal motility and relations to the bladder, which is not the case after Dührssen's operation.

Kober[2] reports upon nearly 1000 cases of uterine retroflexion treated during the years 1893 to 1896. Out of 81 women subjected to vaginofixation according to Mackenrodt's procedure, 45 were under observation for periods varying from 1 year to 3½ years, and 39 of them appeared cured. In 21 instances, internal examination showed the uterus to be in its normal attitude; 8 relapses were observed, and 5 of the women had undergone normal labor. Of 25 instances of pregnancy observed, 6 ended in abortion in the third or fourth month. Of 13 cases of labor, 3 were terminated with forceps outside of the clinic, and 2 were observed in the clinic. In these 2 cases, both the children were lost. One was a case of placenta prævia, and in the other there was prolapse of the funis. In 1 the anterior vaginal wall was found held aloft in the shape of a funnel, and the cervix also was elevated. None of the women died. Of 140 women treated with ventrosuspension, only 41 were under observation for a considerable length of time; although several of them were brought to bed, only 1 relapse was noticed. Out of 16 labors observed, in 2 there was a transverse presentation, and in 1 tetanic uterine contraction and prolapse of the funis led to craniotomy. Of 71 women subjected to the Alexander-Adams operation, 28 were seen subsequently, and 6 of them showed relapse. Six underwent labor normally in the clinic.

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[1] Centralbl. f. Gynäk., No. 4, 1899.

[2] Ibid., Aug. 20, 1898.

Mackenrodt[1] states that the results of his operation, both in his own experience and in that of others, have been for the most part satisfactory; and he has always held to the belief that, were it not for the difficulties in childbirth which have sometimes followed its performance, it would be the operation of choice for retroflexion. As a substitute for his original operation, Mackenrodt has devised a procedure, the principal feature of which is the shortening of the broad ligament and uterosacral ligament through the vagina. To accomplish this, a bell-shaped denudation of the anterior wall of the vagina is made, the narrow end of the denudation being located over the prominence indicating the urethra; while the base of the bell includes the portio vaginalis, extending laterally into the vault of the vagina, so as to expose the lateral ligaments. A stitch is then taken through the ligament, close to the lateral border of the denudation, the suture is passed in front of the portio vaginalis, and a stitch taken through the ligament of the opposite side. On drawing the ends of the suture, the portio is pushed back, and the ligaments of both sides approach each other in the median line in front of it; only 2 or 3 such stitches are needed. The portio is then pushed back with forceps, a strong catgut suture is passed through the anterior wall of the uterus and fastened in the anterior portion of the vaginal wound, and the vaginal wound closed in the median line. The results of this operation are said to have been most gratifying, particularly in cases in which there was a tendency to prolapse.

Abdominal Operations.—(*a*) *Alexander's Operation.*—A. Goldspohn[2] gives a complete review of his work in this direction. He condemns extraperitoneal vaginofixation of the uterus for many reasons, chiefly from the anatomic disorders liable to arise during gestation and the subsequent difficulties which may be experienced at labor. The author considers that "the round ligaments may be approached by 3 routes: 1. By anterior median vaginal celiotomy. 2. By median ventral celiotomy. 3. By way of the inguinal canals." He is of the opinion that by far the best results are obtained by the last method. The 2 valuable clinical reasons appear to be: 1. The mortality is practically *nil.* Johnson collected 637 cases by 9 operators, with 2 deaths; Kellogg has performed it 591 times, without a death; and the author 125 times, without any mortality due to the operation. 2. The operation favors conception, never interferes with pregnancy or labor, and displacement only very rarely recurs. Goldspohn then quotes statistics from his cases and those of others. The necessary requirements for success in Alexander's operation are: 1. "A complete and exact diagnosis as to the condition of the uterus and appendages; namely, the location, size, consistence, tenderness, and mobility of each organ, as far as possible obtained by repeated careful bimanual palpation, after thorough emptying of the bladder and intestinal canal, in order to determine not merely their anatomic bearings, but also the more important question whether septic elements, that probably gave rise to the infiltrations and fixations, still exist in the organs or have died out." 2. It is absolutely necessary for the success of the operation that the uterus and its appendages be freely mobile. In apparently unsuitable cases the author recommends the following preliminary methods of treatment: (*a*) Bimanual massage, thus reducing cicatricial contraction or inflammatory infiltrations in the ligaments of the pelvis. (*b*) Schultze's method of *redressement forcé* under an anesthetic. In this way the uterus can be freed from adhesions, especially those in Douglas's pouch. (*c*) Making an incision into Douglas's pouch and, with 1 or 2 fingers introduced into the opening, liberating the organs that are bound down. (*d*) "Introducing a finger, or 2 if needed, through the dilated internal inguinal ring of 1 or both sides successively, when the round ligament has been drawn out." Goldspohn considers this the most serviceable method; and he finds that, except in very corpulent women, the whole of the posterior uterine surface, and the tube and ovary of the corresponding side can be traced and separated from adhesions. The contraindications appear to be when there is actual prolapsus uteri of more than the first degree, and when there is marked elongation of the sacrouterine ligaments without prolapse, as, for instance, when the fundus lies in a state of retroversion with the cervix against the anterior vaginal wall just above the urethra.

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[1] Phila. Med. Jour., Oct. 15, 1898.

[2] Med. Rec., Oct. 8, 1898.

(*b*) *Ventrosuspension.*—W. L. Burrage[1] gives the comparative results obtained by him in the 2 operations of Alexander and Kelly, as follows: 1. The Alexander operation is preferable to the suspensio-uteri operation "because it seeks to support the uterus by its natural ligaments." 2. The former is certainly indicated in cases of retroversion, retroflexion, and retroposition, provided no ovarian disease be present. 3. Should there be retroposition, with rigidity of the uterosacral ligaments, these should be divided and then the Alexander operation performed. 4. The Alexander operation cannot be relied upon in prolapsed ovary, especially if the ovarian ligaments are long, as the ovary will not be raised into its normal position. 5. Both round ligaments must be shortened, as 1 is insufficient to maintain the uterus in its place. 6. The plan recommended by Edebohls is preferable, although taking a longer time. It consists in making a slightly longer incision, "dividing the aponeurosis of the external oblique, in the direction of Poupart's ligament, up to the internal abdominal ring; isolation of the round ligament in the canal, by means of hooks and separation of the nerve; drawing out of the round ligament up to its uterine enlargement, and stripping back the peritoneal investment. After the other ligament has been shortened, the position of the fundus uteri is verified by the operator's little finger passed through the internal ring." The remainder of the operation is somewhat similar to that followed by other operators. 7. The scars left by the Alexander operation are more covered by hair than the abdominal one. 8. Suspensio uteri is indicated in retroversion, retroflexion, and retroposition with ovarian or tubal disease, whether this be of an inflammatory nature or prolapse. 9. The best method is by means of "absorbable ligatures passed through the anterior and upper portions of the fundus uteri, and through the parietal peritoneum and transversalis fascia only. 10. Suspensio uteri leaves but 1 weak spot in the abdominal wall; whereas the Alexander leaves 2.

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[1] Med. News, Oct. 8, 1898.

A. L. Smith,[1] from a study of 2500 cases of ventrosuspension reported by 41 operators, including 111 cases of his own, concludes as follows: 1. As far as curing retrodisplacements is concerned, whether retroflexion, retroversion, or anteflexion with retroversion, and also prolapse of the uterus, ventrosuspension, with 2 buried silk stitches passing through the peritoneum and fascia, gives the most reliable results. 2. Ventrosuspension should be reserved for cases in which abdominal section is necessary for other reasons, such as the breaking up of adhesions and the removal of the diseased tubes which caused the adhesions. When it is expected that pregnancy may follow, some other operation may be chosen, because (3) although pregnancy followed in only 148 cases out of about 2500, in 30% of these, or 36, there was pain, miscarriage, or difficult labor requiring obstetric operations. 4. When suspensio uteri was performed; that is, the uterus attached to the peritoneum, only a few relapses occurred; but, on the other hand, the patients were free from pain during pregnancy and the labors were less tedious; neither did they require resort to serious obstetric operations. The uterus should therefore be suspended, rather than fixed, to the abdominal wall in all cases in which any part of the ovary is allowed to remain.

FIBROID TUMOR OF THE UTERUS.

Circulation of the Uterus.—An important contribution on the circulation of the pelvis has recently been made by P. Fredet.[2] His observations were made upon 2 newborn children and 12 adults. He confirms the statements of earlier writers, that the uterine arteries supply the entire uterus, the upper part of the vagina, and the inner portion of the ovary; only rarely does the ovarian artery aid in the circulation of the upper portion of the uterine body. Fredet enters very fully into the course of the uterine arteries, and dissents from the facts usually laid down by anatomists; the usually accepted belief is that the uterine artery of each side runs almost directly inward from the side of the pelvis, along the base of the broad ligament to the uterine cervix. Fredet maintains, however, that the uterine artery does not enter the broad ligament until it has nearly reached the cervix uteri. It arises either directly from the internal iliac artery or from the root of the hypogastric artery, passes downward beneath the peritoneal layer on the base of the ovarian pouch, and in front of the ureter. It then passes from the lower edge of this pouch forward and inward, beneath the peritoneum and between the back of the posterior layer of the broad ligament and the uterosacral fold; when it enters the base of the broad ligament, it turns inward toward the uterus, and passes over and in front of the ureter.

Glandular Elements in Uterine Fibromyoma.—Lockstaedt[3] describes 7 specimens of fibromyoma in which he found follicles or cysts lined with epithelium. The tumors were nearly all subserous, and were attached in the neighborhood of the Fallopian tube, so that it seems to him more plausible to infer that the epithelial elements were derived from the glands in the tubal mucosa, rather than from remains of the Wolffian body, as inferred by von Recklinghausen. He also opposes Orlof's view, that the tumor may grow around and include epithelial pouches. Legnen[1] calls attention to the fact that epithelial cells are sometimes found between the muscular fibers and in the meshes of the connective tissue in fibromyomas, especially in those which are adjacent to the endometrium. These cells usually appear as single irregular layers lining blind follicles. He believes that they are derived from proliferation of the glands of the uterine mucosa. Their presence explains the occurrence in these tumors of cysts with epithelial contents, and may throw some light upon the much-vexed question of the carcinomatous degenerations of fibromyomas. Ivanoff's[2] inaugural thesis upon this subject is based upon an examination of 77 fibromyomas of the uterus, the majority of which were of the subserous variety. He was able to find glandular elements in only a single case; hence he concludes that uterine adenomyoma is very rare. He does not believe that embryonic remains that have been present for many years in the uterus can suddenly develop into a fibromuscular neoplasm. In the specimen examined, a zone of irritation was present around the epithelial tubes and cystic cavities, as shown by dilatation of the vessels and round-cell infiltration, the same as in cases of localized obstruction of the circulation.

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[1] Med. News, July 9, 1898.

[2] Jour. de l'Anat. et de Physiol., No. 1, 1898.

[3] Monatsch. f. Geb. u. Gynäk., Band 7, Heft 2.

Etiology and Development of Uterine Fibromyoma.—Keiffer,[3] in studying the vascular supply of the uterine muscle by means of injections, found small, bloodless foci (*ilots*), which seemed to increase in size at the expense of the surrounding muscular fibers. Around the minute myomas were zones of vascular tissue, which evidently served to nourish them. In the center of the nodule could often be seen what appeared to be the lumen of a bloodvessel which had not been reached by the injecting fluid. These myomas grow first centripetally, then horizontally. Keiffer infers that uterine fibromyomas represent a localized hypertrophy of the tissue in the neighborhood of certain vessels; or the isolation of vascular areas caused by thrombosis, prolonged pressure, or other circulatory disturbance. In the higher mammals, in which the muscular structure and vascular supply of the uterus are more complex, myomas are more likely to develop than in the lower varieties. This is borne out by clinical observation.

Oskar Kattmann[4] has investigated 400 cases of fibromyomas, and arrives at the following conclusions: Fibromyomas are most frequent among married women; then in unmarried women and in those who have not given birth to children. This is contrary to the old idea, that sexual life lessens the predisposition to this disease. Pregnancy and childbirth affect but little the frequency of fibroma uteri; on the other hand, in women who have this tumor, conception is less frequent than in the healthy. The following observations are particularly noteworthy, as contrary to generally accepted ideas: In almost one-fourth of the cases, neither the menopause nor the climacteric had any hindering effect upon the growth of the tumor. At these times the growth was in many cases more rapid, and the symptoms were more pronounced; this rapid growth and the more marked symptoms did not depend upon malignant degeneration of the tumor. Fibromyomatous growth may even begin at the menopause or climacteric.

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[1] Centralbl. f. Gynäk., No. 34, 1898.

[2] La Gynéc., Dec. 15, 1898.

[3] Ibid., Feb. 15, 1899.

[4] Arch. f. Gynäk., Band 54, Heft 2.

G. Peckham-Murray[1] states that the 3 principal theories regarding the origin of fibroids are: 1. Cohnheim's theory that they are developed from the mesoblast. 2. That they are the result of a disturbance in the nutritive supply of the part. 3. That they are of microbic origin. The literature is full of suggestions as to the treatment of the symptoms, but contains very little concerning the formative period of fibroids. In all her cases of fibroids extensive inflammatory conditions had been present, notably endometritis. Long-continued inflammation of the endometrium, extending into the uterus, seems to be an important factor in producing that disturbance in the blood-supply which appears to be the starting-point of fibroids. She believes in the vascular theory of their origin. The size of the tumor, she thinks, is dependent upon the size of the vessel supplying it, which, in turn, is determined by the location of the original nidus. She believes it a fallacy to suppose that these tumors commonly cease to grow at the menopause. In her experience, patients with uterine fibroids have usually been excessively nervous. Attention is called to the view held by some, that curettage is not only not beneficial, but often seems so to modify the blood-supply as actually to favor the development of fibroids. Boldt said that some years ago he spent several months in studying this subject, with the aid of Carl Heitzmann; and he then came to the conclusion that uterine fibromas are developed from the walls of bloodvessels. Physicians commonly look upon the endometritis as a result of the presence of the fibroids; *i. e.*, just the opposite of the view enunciated in the paper. His own observations regarding the influence of pregnancy on fibroid tumors convinced him that the rule is, that the coincident increase in the vascularity of the parts exerts a very decided accelerating influence on the growth of such tumors.

Symptomatology.—H. D. Ingraham[2] remarks that the complications which accompany fibroids are quite numerous, and many of them serious. Among them are fatty liver, probably due to changes in the portal circulation; diseases of the kidneys, such as pyelitis, pyelonephritis, and hydronephrosis, due to pressure on the ureters, are quite frequent. But the most frequent of all complications are lesions of the heart. One of the reasons given for their occurrence—viz., "increased vascular pressure"—may deserve some consideration; but he believes the chief cause of heart-lesions is due to the anemic and cachectic condition induced by the excessive loss of blood that occurs in many cases. He looks upon menorrhagia and metrorrhagia as among the most dangerous symptoms of uterine fibroids. If these symptoms cannot be controlled by palliative measures, such as tonics, curetting, electricity, the thyroid extract—and in most cases the writer has little faith in any of these—removal of the growth becomes necessary. If it can be done by myomectomy, it should be; but if this operation is not feasible, then hysterectomy, either abdominal or vaginal, as the operator may select, should be performed. If complications have not occurred, he looks upon removal of the fibroid tumor as a comparatively safe operation.

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[1] Med. Rec., May 20, 1899.

[2] Va. Med. Semi-monthly, Oct. 7, 1898.

PLATE 6.

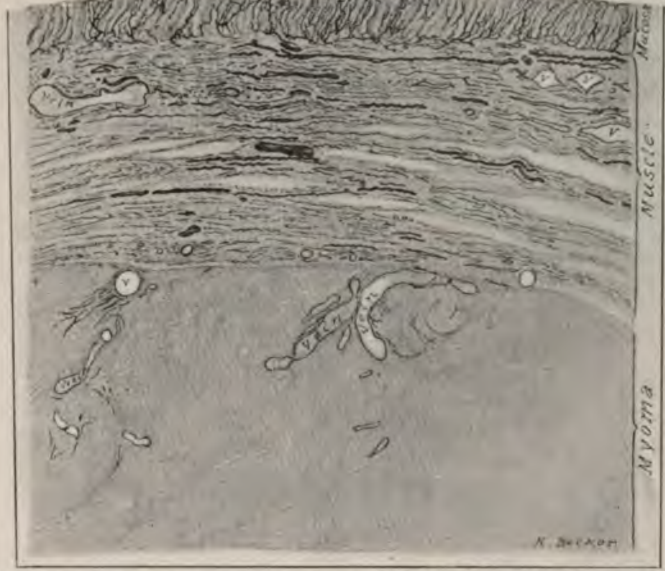

FIG. 1.—Injected specimen of interstitial myoma, showing derangement of vascular scheme. The perpendicular vessels noted in the normal scheme have assumed a parallel course through encroachment of the myomatous tumor. The endometrial twigs, instead of being merely the straight terminals of the perpendicular branches, are here given off at right angles. During menstrual congestion these twigs naturally become more congested, through purely mechanical conditions, than in the normal state; consequently an increased diapedesis occurs. The large venous channels upon the surface of the myoma, to which attention is called in the text, are also well shown.

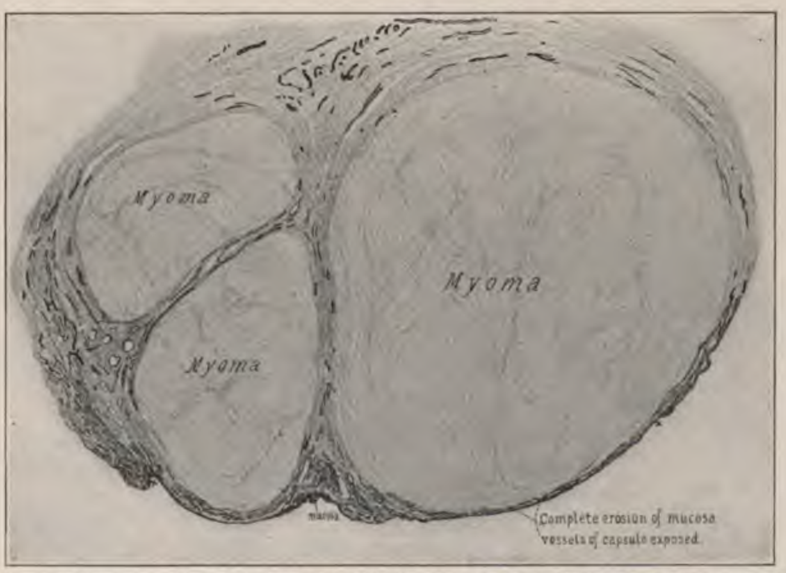

FIG. 2.—Uterine wall containing 3 interstitial myomata, 2 of which have so far encroached upon the uterine cavity as to cause almost complete erosion over the larger tumor and considerable atrophy of the mucosa over the smaller tumor. The mucosa in the depression between the tumors is greatly thickened, edematous, and congested. Limit of mucosa is indicated on either side by ×. In this instance, the influx of blood being only slightly impeded and the reflux very greatly retarded by the crowding together of the 3 tumors, the hemorrhage was excessive and irregular. The mucosa over the large tumor was so far eroded as to leave the wreath of vessels around the tumor exposed and subject to rupture through either simple pathologic or traumatic influences. (Clark.)

J. G. Clark[1] concludes that the hemorrhage of fibroid tumors is due not to the tumors *per se*, but to mechanical disturbances induced in the uterine circulation through its presence. These mechanical conditions induce, first, a congestion of the deeper-seated muscular and endometrial vessels, and this in turn leads to an increase or prolongation of the menstrual flow; and, secondly, an actual derangement or disorganization of the vascular systems of the endometrium and of the tumor itself, through which atypical hemorrhages occur, varying in degree from a slight intermenstrual discharge to a loss of blood so great as to cause most prostrating or even fatal anemia. The normal and the deranged vascular distribution are shown schematically in Fig. 65 and Plate 6.

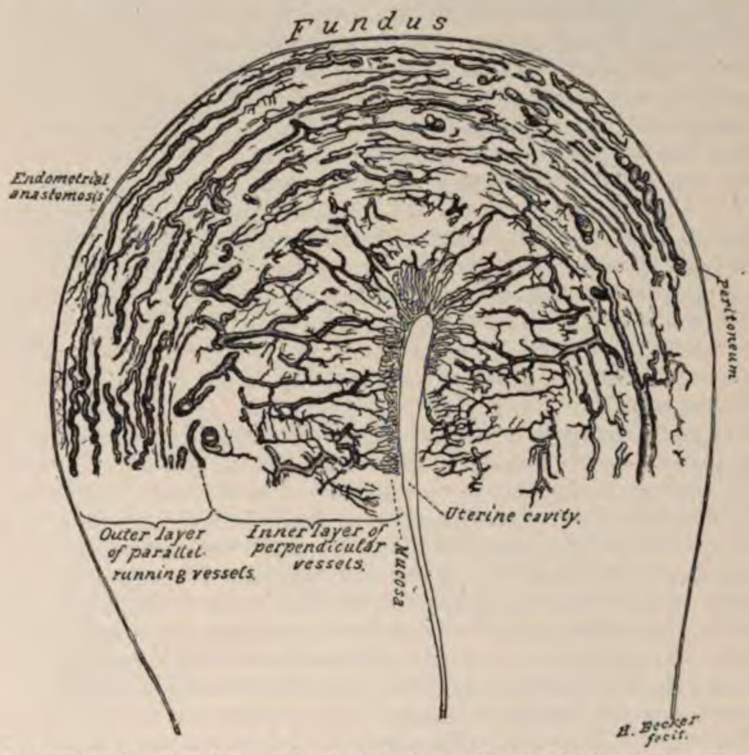
Fundus
Endometrial anastomosis
Peritoneum
Uterine cavity
Outer layer of parallel-running vessels
Inner layer of perpendicular vessels
Mucosa
H. Becker fecit.

FIG. 65.—Sagittal section of uterus, showing the scheme of the arterial distribution. The parallel vessels of the external muscular layer freely anastomose among themselves. From the innermost arteries branches are given off at right angles, which penetrate the inner muscular layer, supplying it with numerous anastomosing nutrient vessels, and finally terminate in a rich capillary supply to the endometrium (Clark).

Palliative Treatment of Uterine Fibroids.—Landau[2] criticises the reasons generally advanced in favor of treating fibroid tumors symptomatically: 1. Though a myoma is usually a benign tumor, it does not necessarily remain so. Apart from the possibility of its breaking down and sloughing, metaplastic processes—sarcomatous or carcinomatous degeneration—are not uncommon; and death from metastasis has been known to occur, though the tumor was histologically a simple myoma. Not uncommonly ascites appears without apparent reason, and is then permanently cured by removing the myoma. 2. Myomas do not necessarily shrink nor their symptoms disappear at the climacteric period. This occasionally happens, though it is much more common for growth and hemorrhage to continue long after the menopause. Apart from degenerative processes, myomas may shorten life; but death directly of hemorrhage from this cause is very rare. Many complications are produced by a myoma, either by pressure or by secondary inflammation. Even quite small tumors may cause serious trouble when situated within the true pelvis. Retrocervical fibroids especially are an extremely dangerous complication of pregnancy. Other possible consequences, as pains in the legs from pressure on the nerves, strangury, dysuria, retention and incontinence of urine, compression of the ureters and consequent renal colic, hydronephrosis, pyonephrosis, and pyelitis, may occur and completely obscure the symptoms of the myoma which originates them.

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[1] Bull. Johns Hopkins Hosp., Jan., Feb., Mar., 1899.

[2] Therap. d. Gegenw., Jan., 1899.

To control the hemorrhage, T. J. Parsons[1] says that if the uterine canal is fairly patent, a simple and temporarily efficacious proceeding is to swab it with a probe covered with cotton-wool dipped in liquor ferri perchloridi fortior. It very often happens that the probe cannot be passed up without squeezing most of the solution out at the external os. Under these circumstances, dilatation becomes necessary, and a better result will then follow from the use of the curet. The removal of the diseased endometrium produces an abatement of symptoms that will last for some months.

Organotherapy.—[The extracts of the thyroid, parotid, and mammary glands have been used in the treatment of fibroid tumor of the uterus with a varying degree of success.] Freund,[2] replying to a recent criticism by de Voogt, calls attention to the fact that he (Freund), while pointing out the fact that the thyroid gland may undergo temporary enlargement physiologically under the influence of pregnancy and the puerperium, showed that permanent increase in size is noted only in cases in which the uterine muscle is subject to active and prolonged irritation. Of 56 cases which were carefully observed, 44 were instances of fibromyoma. In none of these was there any reason to suppose that the glandular enlargement was due to trauma, as in the case reported by de Voogt. W. M. Polk[3] writes on the clinical effect of thyroid extract upon fibroid tumors of the uterus. He adds clinical notes of 10 cases. In 1 the treatment had to be discontinued at the end of 2 weeks, as it caused severe gastric disturbance. In the 9 others, the net result in each case has been improvement, the greatest existing in those who took the treatment longest. Its manifestations were: 1. Control of the menstrual flow. 2. Arrest of the growth, and in some cases diminution in the size of the tumor and apparent softening of it. 3. Disappearance of pain and diminution of tenderness in the growth, and also of the sense of abdominal and pelvic distention; increase of muscular and nervous energy. 4. Improvement of general nutrition, shown at first by slight loss and then by return of flesh; improved state of the skin, hair, and nails; and disappearance of anemia. "Thyroidism" was shown by tachycardia, restlessness, and sleeplessness when the drug was taken at bedtime; and, lastly, indigestion.

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[1] Gaillard's Med. Jour., Oct., 1898.
[2] Centralbl. f. Gynäk., No. 32, 1898.
[3] Med. News, Jan. 14, 1899.

Dorland[1] concludes as follows: 1. The thyroid gland, in addition to its general effect upon the metabolism of the body, exerts an inhibitory action upon the pelvic genital organs, and upon the uterus in particular. This action seems to be especially marked upon the epithelial elements of the endometrium. 2. As a result of this inhibitory or vasoconstrictor action, there follows a retardation of hemorrhages from the uterine mucosa. 3. This action is directly antagonistic to that exerted upon the uterus by the ovarian secretion. 4. In cases in which this conservative influence is deficient or absent, it may be restored by the ingestion of fresh thyroid gland or desiccations or extracts of that organ. 5. In gynecology, thyroid therapy is especially indicated in hemorrhagic affections of the uterus and in all forms of pelvic congestion, notably in uterine fibromas, hemorrhagic endometritis, menopausal hemorrhages, and chronic tubal disease. 6. The best results are to be expected in fibromas and pathologic conditions of recent development. The more chronic the case the more rebellious will it prove to thyroidization.

John B. Shober[2] advocates the use of mammary-gland and parotid-gland preparations in the treatment of fibroid tumors of the uterus and in certain forms of ovarian disease, respectively. Since he began to use the mammary-gland tissue, more than a year ago, he has operated on only 1 case of uterine fibroid in which the pressure-symptoms and hemorrhage were too urgent to permit of palliative treatment. He has treated a number of cases, ranging from large multinodular tumors to small subserous nodules, with satisfactory results, the menorrhagia and metrorrhagia ceasing and the tumors diminishing in size. The gland is administered in the form of tablets, each containing an equivalent of 20 gr. of the fresh gland, 3 to 6 tablets being given daily. He has also used the parotid gland in the treatment of ovaritis, enlarged, congested, and tender ovaries, ovarian neuralgia, and ovarian dysmenorrhea, and has obtained better results than by any other form of treatment. Positive results cannot be expected when there is associated disease of the Fallopian tubes, as hydrosalpinx, pyosalpinx, and pelvic inflammatory disease.

Surgical Treatment.—Landau[3] considers that if the myoma is causing no trouble, it should be left alone, since it does not become dangerous nor even troublesome in every case. He gives the following general rules: 1. The younger the woman the sooner it should be decided to operate. 2. There are fewer objections to operating on a single fibroid than on multiple tumors, since there is a fairly good chance of preserving the uterus. 3. Antecervical or retrocervical myomas should always be removed, to prevent trouble in subsequent labors. 4. If a woman must work for her living, an operation is often advisable, though it might not be necessary if she were able to lead an easy life.

Chandelux[4] has noticed that if the cervix is completely effaced in the case of a voluminous fibroma, there is reason to assume a subperitoneal extension of the tumor, creating serious operative dangers. When the cervix has retained part of its normal characteristics, the tumor can usually be pedunculated and hemorrhage arrested by compression of the pedicle; but if it is deformed or effaced, fatal hemorrhages may ensue in the course of an operation.

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[1] Therap. Gaz., July 15, 1899.

[2] Am. Jour. Obst., Feb., 1899.

[3] Loc. cit.

[4] Sem. méd., Dec. 7, 1898.

Vaginal Ligation of the Uterine Arteries.—Mangin[1] reports 14 cases, from which he makes the following deductions: 1. Ligation of the uterine arteries is a simple operation, devoid of danger, and can be performed without anesthesia. 2. It is especially indicated in cases of obstinate menorrhagia which resist medicinal treatment and curetment. 3. After ligation of the arteries hemorrhage nearly always ceases, and fibroids often undergo atrophy, especially when these are situated in the lower uterine segment. 4. The only contraindication to the operation is disease of the adnexa. Gottschalk[2] reports 16 cases of fibromyoma in which he ligated the uterine arteries. In 7 the tumors totally disappeared; while in 14 they diminished in size. In selecting cases for operation, the most important point to be noted is the site of the neoplasm. Interstitial tumors located in the lower or middle segment of the uterus are more apt to be favorably influenced than are intraligamentous growths and those situated at the fundus. The patient's age is important; the most favorable results are obtained in women near the climacteric. Rapidly growing tumors and those with general vascular adhesions, especially omental, are not apt to diminish in size after ligation of the uterine arteries. Obstinate hemorrhage is the chief indication for the operation; but before proceeding with the ligation, it is always advisable to explore the uterine cavity, in order to discover and remove any submucous polypi which may be the direct cause of the bleeding. [The anastomosis that exists between the branches of the uterine and ovarian arteries would have suggested that the collateral blood-supply after ligature of the uterine arteries would be great; but the effect, in some cases at least, produced by this ligature leaves no room for doubt that this collateral circulation is not established at all readily. Possibly some of the discordance in the results obtained in the treatment of fibroids by Martin's operation is to be explained by the ligature having included only 1 branch, and not the main trunk of the uterine artery, as division occurs at some distance from the uterus. The 2 great arguments in favor of the operation are the absence of mutilation and the comparatively slight risk to life; these in themselves will be sufficient to render it a suitable operation in cases in which patients or friends object to methods more likely to be followed by success.]

Vaginal Enucleation.—According to W. R. Williams,[3] septic infection of myomas projecting into the uterus and vagina is a most dangerous complication, which is apt to be caused by any form of traumatism. Consequently vaginal removal should only be attempted when complete extirpation of the tumor seems feasible. It is a mistake to attempt to imitate the natural process of expulsion by partial operation, by incision into the capsule, by decortication, or by gouging or burning the tumor-substance, for in 14 out of 20 cases the natural efforts at elimination end fatally, and the results of the artificial imitation thereof are hardly less disastrous. For similar reasons, ligation and torsion of the pedicle are also to be condemned, as well as the use of the écraseur, the galvanocautery snare, and the curet; for all these proceedings favor

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[1] La Gynéc., Oct. 15, 1898.

[2] Ann. de Gynéc. et d'Obstét., No. 5, 1898.

[3] Bristol Med.-Chir. Jour., Mar., 1899.

inflammation and septic infection, of which many fatal instances might be adduced. In a less degree, the same objection applies also to dilatation of the cervix by sponge tents, laminaria, etc. The removal of myomas growing into the vagina from the inferior segment of the uterus, and of tumors that have descended from the uterus into the vagina, or that have become engaged in the cervical canal, may generally be best effected by enucleation per vaginam. Pedunculated tumors of no great size are best removed by cutting through the pedicle, close to the tumor, with scissors curved on the flat. If feasible, the pedicle may be previously ligatured or seized with pressure-forceps. A tampon of iodoform gauze is afterward introduced into the vagina. In vaginal extirpation, the first step is to render the tumor accessible. To effect this, the vaginal fornix is divided—anteriorly or all round if necessary; and the bladder, having been detached from the cervix, is drawn up with a retractor, as in vaginal hysterectomy. The anterior wall of the cervix is then divided by a median longitudinal incision, and the cervical canal is laid open until the tumor is exposed. The latter is seized with the volsella, drawn down, and a deep incision is made into it. One lip of this incision is grasped with morcellation-forceps, and all that it holds is cut away. By repetition of this process, the whole tumor is removed piecemeal. The gravity of the operation depends much upon the size and condition of the tumor to be removed. Péan has extirpated very large tumors, such as are usually dealt with by laparotomy, in this way, with 3 deaths in 40 operations.

Myomectomy.—W. J. Smyly[1] remarks that myomectomy, or removal of the tumor only, is what is popularly styled an ideal operation; nothing but diseased tissue is removed, and the uterus is left structurally and functionally perfect. In considering this operation, we must carefully distinguish between abdominal and vaginal methods. Subperitoneal tumors are easily removed, but seldom call for interference. Interstitial growths are seldom single; and, though all recognizable growths may be enucleated, it is generally impossible to remove every nodule; and as these are liable to further growth, the operation is often a palliative and not a radical procedure; and when the high mortality attendant upon it is taken into consideration, it is better to remove the uterus, excepting, perhaps, in the case of very young women, when the growth is evidently single. These objections, however, do not hold good with regard to submucous growths which protrude into the cavity of the uterus, or which are polypoid, since their removal is, as a rule, devoid of danger; and if others develop they can be removed in the same way. Montgomery[2] states that the operation is done either by the vagina or through an abdominal incision. In the majority of cases, the abdominal incision would be required. Small growths, more or less pedunculated, which have partially or completely dilated the cervix, give but little difficulty in either diagnosis or treatment. When the cervix is not sufficiently dilated to afford investigation and exit for the growth, a bilateral incision can be made and the tumor rendered more accessible. When the tumor is situated within the cavity of the uterus, with a cervix that is more or less long and undilated, the difficulty is more marked. An investigation of the situation and size of the growth, with its relation to the uterine wall, is an important prerequisite to an operative procedure. To make such an investigation, it is necessary that the canal should be dilated, in order to permit introduction of the finger. This dilatation may be accomplished by repeated gauze packing (Vulliet), dilatation with bougies (Hegar), the use of tents, or bilateral incision of the cervix to or beyond the internal os (Péan). Bilateral incision would seem too radical a measure for a mere diagnostic purpose, and with proper dilatation will be unnecessary for the removal of some growths. The situation of the incision would be impracticable or embarrassing in the treatment of others. Vulliet's method is slow, and not always effective. The use of bougies will cause the cervix to be badly torn before the canal is sufficiently opened to admit the finger. Dilatation by tents is the most satisfactory. Sponge tents are the most effective; but are so difficult to render aseptic and so easily infected that their employment is not advisable. The hollow laminaria tent of good size will in the great majority of cases render digital exploration possible within 12 hours. When the canal is insufficiently dilated by the first tent, it may be carefully cleansed, and the dilatation accomplished by a second relay of tents. If the surgeon is unprepared for operation at the time of the digital exploration, this dilatation may be maintained 24 hours longer by gauze packing. [The use of tents cannot be endorsed under any circumstances. Other methods of dilatation should be adopted.]

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[1] Brit. Med. Jour., Sept. 17, 1898.

[2] Therap. Gaz., Sept. 15, 1898.

W. R. Williams[1] describes the abdominal operation thus: Enucleation is commenced by making a longitudinal incision into the projecting part of the tumor, so as to divide its capsule. The tumor is then seized and shelled out with the fingers, aided by a blunt enucleator. If necessary, it may be cut up and removed piecemeal. Redundant tissue about its bed is cut away, and the cavity is uniformly closed throughout by one or more rows of superimposed buried catgut sutures. Over these the divided peritoneum is drawn, and its infolded serous margins are united by a row of Lembert sutures. The elastic constrictor is removed, and any bleeding points are secured. The toilet of the peritoneum is performed. Lastly, the stump is examined; and when satisfactory hemostasis has been secured, the stump is dropped into the abdomen, and the operation is completed as in ovariotomy.

Hysterectomy.—E. Cushing[2] considers that for the removal of the uterus we have choice of the following methods:

- I. Suprapubic amputation.
  - Extraperitoneal.
  - Intraperitoneal.
    - Cervix cauterized and drained.
    - Cervix closed without cautery.
- II. Total extirpation.
  - Abdominal.
    - Vagina open; peritoneum open or closed.
    - Vagina closed.
    - Combined abdominovaginal method.
    - Method adopted by Doyen, Martin, Richelot.
  - Vaginal.
    - Clamps (morcellation).
    - Ligatures with or without drainage of the peritoneal cavity.

He also considers the relative advantages of abdominal and of vaginal hysterectomy. He thinks that it is necessary to have "a much greater dexterity, experience, and resource to perform vaginal hysterectomy in really the best manner in difficult cases, than to operate by the abdominal incision." After alluding to the favorable features of each method, he thinks there are "certain special considerations which may further influence us in the choice of the method of removing the uterus, such as the age and physical condition of the patient, the amount of fat in the abdominal wall, the caliber of the vagina, the space between the pelvic bones, the preference of the patient, or even the possibility of obtaining consent to a necessary operation, which cannot be obtained if the abdominal wall must be incised." Cushing disapproves of the combined vaginal and abdominal method, and condemns the use of clamps because of the pain and misery they produce.

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[1] Loc. cit.

[2] Boston M. and S. Jour., No. 14, 1898.

H. Delagenière[1] gives a resume of the operation of vaginoabdominal hysterectomy, and describes his own method of procedure. This operation was introduced by Bardenheuer, in 1881, for fibromyomas, as a means of avoiding septic and other accidents due to the pedicle. The cervix is exposed with specula and seized with a volsella, and traction used; the vaginal wall is incised in a circular manner, the incision being 2 cm. from the cervix. At the level of this incision the mucous membrane is seized and dissected up with scissors and fingers all around, care being specially taken to avoid opening up the peritoneum. When separation is complete, the uterine artery is felt for, and a pair of forceps is applied on each side; the tissues between the forceps and the cervix are divided, and then the peritoneum opened posteriorly. An antiseptic plug is then placed in the vagina, and this part of the operation is completed. The patient is now placed on an inclined table and the abdominal walls carefully sterilized; a median incision is made from the symphysis pubis to the umbilicus, and the fundus uteri seized with forceps, and traction in an upward direction exerted. The broad ligaments are tied in sections after applying the hemostatic forceps, and the uterus and appendages are lifted out of the pelvis. The iliac vessels and glands can be well seen; and if the latter are enlarged, as is often the case in cervical carcinoma, they can be removed.

Abdominal Hysterectomy.—Pozzi[2] remarks that in total abdominal hysterectomy for fibroma it is of the greatest importance to reach as quickly as possible the surface of the uterus, so as not to divide the arteries that pass along its circumference. One then only has to pay attention to the uterine arteries, all branches divided in this way contracting so forcibly that there is no hemorrhage. It is even possible, as Pozzi saw in the case of an operation performed by an American surgeon, to remove the entire uterus without any need of placing a single ligature. In other words, the uterus should be treated exactly as the bone in a subperiosteal resection. Total extirpation or supravaginal amputation is the question discussed by O. Küstner.[3] His latest series comprises 50 supravaginal amputations, with 1 death; and 48 total abdominal extirpations, with 6 deaths. In 3 of the fatal cases, streptococci and staphylococci were found in the abdomen, although 2 had apparently died from shock or heart-failure. He decides the foregoing question according to the menace of ileus or peritoneal sepsis. After scrupulous sepsis, he lays most stress on limiting the secretion from the wound. He attains this by careful hemostasis by closing the wound completely, or, if this is not possible, by brief drainage of the abdominal cavity. The advantages of the supravaginal amputation are: its greater simplicity, especially in nulliparæ, the smaller extent of the wounds, and the absence of germs in the amputation-wound. On the other hand, total extirpation is urgently indicated in case an intramural cervical myoma extends so far that amputation of the cervix is impossible, or if the myoma has effaced the cervix, and always for a suppurating myoma. With these exceptions, he concludes, good results can be attained with either method.

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[1] Progrès méd., No. 46, 1898.

[2] Med.Rec., Apr. 1, 1899.

[3] Berlin. Klinik, No. 125, 1898.

W. R. Pryor[1] claims priority for the rapid "right to left and left to right" operation in hysterectomy for fibroid and pus cases, he having originated the method, now known as Kelly's operation, and in France as "la méthode Américaine," as early as October, 1894.

B. Robinson[2] recommends the following method of abdominal hysterectomy: A long median incision is made, to allow the tumor to be brought out of the wound. With catgut, beginning at the angle of the wound above the umbilicus, the peritoneum is closed down to the posterior surface of the uterus. This practically closes the peritoneal cavity. Then the ovarian arteries at the uterine ends of the Fallopian tube are ligated with catgut, and a large clamp is placed on the uterine side of the broad ligaments on each side of the uterus, as far down as the peritoneal cuff. The ovaries are left *in situ*, and as much of the uterine ends of the oviducts as possible, to preserve the nerves of the ovaries, broad ligaments, and tubes intact, in order to avoid precipitate menopause. The broad ligament is then split down to the uterine arteries and ligated with catgut. The peritoneal cuff is now stripped down, making it as ample as possible. The uterus is amputated just above the internal os. The upper edge of the peritoneal cuff is now sutured to the parietal peritoneal edge, which is produced by the median incision, and the peritoneum is entirely closed. The peritoneum is immediately closed after making the cuff if desired, in which case the shock is similar to an exploratory laparotomy. The uterine stump, closed to a cone by catgut, is drawn up in the abdominal wound and fixed there. The external layers of the abdominal wall, muscles, fascia, and skin are then closed by silkworm-gut sutures. The 2 sutures of the wound over the extraperitoneal stump are allowed to remain united for 36 to 48 hours, to allow the escape of primary wound-secretion. The patients recover with little pain or discomfort. This procedure leaves no ligatures in the abdominal cavity; all are extraperitoneal.

MALIGNANT DISEASE OF THE UTERUS.

Etiology of Carcinoma Uteri.—An editorial[3] states as follows: What the nature of the irritant may be that causes the localized overgrowth of epithelial cells which we call cancer, we are yet no nearer knowing than we were before the demonstration of its exact pathology, more than half a century ago. Notwithstanding all the claims that have been made of the causal influence of external biologic factors, parasites from bacteria, and fungi, schizomycetes, and blastomycetes, to various forms of animal parasites, gregarines and protozoa generally, we are no nearer the solution of the problem than before. Of late, the subject has been approached from the other side—the essential vitality of epithelial cells and their reaction to various irritants—and some most interesting results have been obtained by various observers. In Hektoen's review of this subject, we find some striking observations collated. Ljunggren, for instance, found that he could preserve carefully sterilized bits of human skin in sterile human ascitic fluid for months, and that the cells of the tissues retained their vitality. Three months after their removal from the body the cells of the deeper layers showed well-stained nuclei and good protoplasmic structure. Successful transplantation was made with pieces kept in such sterile fluid for a month. Small pieces of the transplanted skin were removed at varying intervals, and it was found that a marked proliferation of epithelial cells, showing many nuclear figures, had occurred. Special precautions were taken, which absolutely assured the absence of cells that might have grown in from the surrounding cutaneous margin, and so vitiated the conclusions. The transplanted cells not only grew over the raw surface, but also penetrated into the granulation-tissue beneath, after the manner of a beginning carcinomatous growth. Even more interesting and suggestive than this are the observations made by Loeb on epithelial regeneration: "From the margin of a tissue-defect, huge epithelial protoplasmic or plasmodial masses move in a sliding manner over the naked surface, inclosing and dissolving the crust and other obstacles. Regenerating epithelium readily removes such substances as cartilage when placed in its way. Below the protoplasmic layer epithelial cells wander in from the margins of the defect, and often grow down into the connective tissue, apparently checking the growth of the latter. The process is closely allied to changes in carcinoma. At the same time, active changes, such as mitoses, occur in the epithelial cells removed some distance from the margins of the wound. Loeb believes that the wandering of the cells as outlined is in response to stereotropism, and forms a determining factor in inducing mitosis in the remaining cells." The pregnant significance of these observations, especially the apparent action at a distance of epithelial elements in arousing epithelial cells into reproductive and germinal activity, can scarcely be overestimated. This is the essence of carcinoma; though in healthy subjects the vital resistance may be sufficient to restrain the morbid overgrowth that would otherwise result. According to Loeb, "if a small bit of epithelium is placed in the center of the crust covering a defect in the skin, it begins to send out processes in all directions into the crust, the cells acting as separate organisms, independent of blood-supply or nervous influence." [We are evidently closely in touch, in these manifestations, with the as yet inexplicable vital forces that we see at work in all their untrammelled energy and power in cancer. Further observations are needed to give the deductions from these observations practical application. They constitute, however, the most hopeful aspect of the present pathologic work on cancer, as far as regards the near prospect of discovering its etiology. Their value as additions to biologic science, especially to that mysterious problem—the struggle for life among the various cells of the body-tissues—can scarcely be overestimated.]

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[1] Med. News, Sept. 24, 1898.

[2] Phila. Med. Jour., June 24, 1899.

[3] Ann. of Gyn. and Pediat., Apr., 1899.

Symptoms and Pathology of Carcinoma.—L. Frank[1] recognizes 3 different forms of cervical growth—viz., (1) the *cauliflower*, or *papillomatous;* (2) the *nodular*, or *parenchymatous;* and (3) the *ulcerative*, or *excavating*, which is the *carcinoma colli* of some authors. Pozzi has also described a form beginning in the posterior junction of the vagina and the cervix, which he terms the *carcinoma luminare*. He urges the importance of bearing in mind the structures which may be involved secondarily, as this indicates to a certain extent what we may expect at certain stages of the disease. Thus, the bladder or rectum may become involved, giving rise to vesical and rectal symptoms; we may have nodules formed in the peritoneum. These cases of extensive disease are all necessarily inoperable, and therefore necessarily fatal. There is 1 complication which occurs much earlier than has ordinarily been supposed, and to it is due the fact that there are so few permanent cures reported after operations for malignant uterine disease—viz., lymphatic involvement. It will be remembered that there are in the pelvis both superficial and deep lymphatics. These may early become the seat of carcinomatous infiltration, so that the disease will readily and rapidly recur after the organ has been taken out. This involvement may be so slight that it is impossible to detect it by bimanual examination, just as in cancer of the breast the glands may be involved without any signs of such involvement.

Peisser[2] has found the lymphatic glands affected in more than 50% of the cases of carcinoma colli uteri he has examined. This propagation occurs early, while the carcinoma is still operable and the ligaments are supposed to be still "free." The regional glands should therefore be removed with the neoplasm, which cannot be accomplished per vaginam, and renders the abdominal route imperative. He has established by means of injections that the glandulæ hypogastricæ and sacralæ are the first stations of the collum uteri system. Frank further states that a most suspicious symptom is the occurrence of a leukorrhea, which may be slightly odorous in character (between the menstrual epochs), and which may or may not be accompanied by pain. Odor to the discharge is a very valuable sign; though it may not occur until a time when the recognition of the cause would be of no value. In the so-called parenchymatous, or nodular, cancer, pain may be the first and most prominent symptom. This is also true of cancer of the uterus. Pains—pricking, lancinating, and cutting—radiating throughout the pelvis, down the hips and up through the abdomen, constitute a very valuable symptom. These pains may be so slight at first as hardly to create any suspicion or alarm; but when accompanied with hemorrhage or with an odorous discharge suspicion should be aroused. There may be at this time very little loss of flesh, or there may be none; the appetite may be slightly or not at all impaired; there may be no cachexia; and, in fact, there may be nothing upon which to base the diagnosis except the occurrence of slight hemorrhage, with the revelation made by the examining finger and the microscope.

T. M. Madden[3] emphasizes the importance of recognizing the beginning signs in the cervix. At an early stage of the disease, the margin of the os uteri is found hard and often fissured. In the situation of the muciparous glands there are felt several small and distinctly defined projections, almost like grains of shot or gravel, under the mucous membrane. Pressure on these with the point of the finger gives rise to pain or nausea. The circumference of the os uteri feels indurated or turgid, and is of a deep crimson color; or, if eroded, presents some slightly projecting points, which bleed readily on touch. These nodules, when excised, will be found under microscopic examination to afford all the characteristics of malignancy.

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[1] Med. Mirror, Sept., 1898.

[2] Zeit. f. Geb. u. Gynäk., vol. xxxix., No. 2.

[3] Dublin Jour. Med. Sci., June 1, 1899.

Diagnosis of Carcinoma.—Heitzmann[1] emphasizes the fact that pain, metrorrhagia, and foul discharges are late symptoms of malignant disease of the uterus, which often mark the inoperable stage. Hence the necessity of recognizing the presence of carcinoma before these appear. He calls attention to an important aid to diagnosis, which he first published 20 years ago. If a pledget of cotton soaked in a 10% solution of copper sulphate be applied for a minute or two to a suspicious erosion on the portio vaginalis, the surface will become quite blanched if it is a mere ectropion; if it is a simple erosion, a thin, bluish-white coating will form, without hemorrhage. By repeating the applications at intervals of 3 or 4 days, the erosion will be entirely healed at the end of a fortnight by the ingrowth of squamous epithelium from the periphery of the raw surfaces. In the case of a cancerous ulcer, on the contrary, a light application of the solution of copper will cause bleeding, which can be checked by ferripyrin or iron perchlorid. A few days later the application is repeated. If the erosion diminishes in size, becomes less hypermic, and is surrounded by a pale ring of newly formed pavement-epithelium, the suspicion of malignancy was unfounded; should the erosion again bleed more freely than before, the diagnosis of incipient carcinoma may be regarded as practically certain. In order to confirm the diagnosis, additional applications may be made. The persistence of a single bleeding spot after the rest of the raw surface has healed is sufficient to establish the fact of malignancy. At this stage, amputation of the cervix will, in the majority of cases, result in a permanent cure. When cancer of the endometrium is suspected a sound should be introduced and swept gently around the interior of the uterus, in order to detect prominence or diseased portions of the lining membrane. If no bleeding follows its withdrawal, the case is probably one of simple hyperplastic endometritis. If hemorrhage occurs, an applicator wrapped with cotton saturated with the copper solution is carried into the uterus. The bleeding will at once cease if the condition is benign, and a few applications will effect a cure. If the hemorrhage is increased at each application, the existence of cancer should be suspected, and the curet is used to confirm the diagnosis. Changes in the glandular epithelium are sought for, since the glands form the starting-point of the disease. Heitzmann has rarely failed to find such microscopic confirmation of his provisional diagnosis based upon the recurrence of hemorrhage after applications of the copper sulphate. The value of this method of diagnosis is strikingly shown in cases of condyloma and syphilitic and tuberculous ulcers, which heal readily under this treatment, cancerous surfaces alone being unaffected.

A. Lea[2] emphasizes the value of microscopic examination of the scrapings of suspected cases. He gives the diagnostic points as follows: In benign adenoma uteri, the endometrium presents numerous irregularities and polypoid projections from its surface. It is the "villous polypoid or fungous endometritis" of many writers on this subject. "Hemorrhagic endometritis" is a term also which has been applied to it. It may, however, be more correctly described as a "diffuse adenoma of the uterine mucosa." The growths are usually numerous, varying in size, but the largest not exceeding the size of a pea; they may be sessile or pedunculated. The surface "is covered by columnar ciliated uterine epithelium," which is healthy, and in a single layer, as is that lining the tortuous glands. The growths are very vascular, and, "as the stroma is often loosely disposed, capillary hemorrhages are frequent." Occasionally, these growths are found singly in the uterus, and may attain a large size. When pedunculated, they may protrude through the os uteri, and are then clinically termed "mucous polypi." In epithelioma, the author thinks the new growth commences in the epithelium lining the body of the uterus. "The epithelium forms solid columns of cells, which grow down into the mucous membrane and spread to the muscular coat. Microscopically, we find large alveoli completely filled with epithelioid cells, as noted in cancer in other parts of the body." In very rare instances, squamous-cell epithelioma with cell-nests has been observed in the uterus. The chief characteristics of a malignant growth may be summed up as follows: 1. Many alveoli are entirely filled with cells, which also markedly invade the stroma. 2. The glandular spaces are numerous, very much branched, or lying in parallel columns. 3. The malignant growth shows but scanty stroma containing large nucleated spindle-cells, and is very vascular.

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[1] Centralbl. f. gesammte Therap., July, 1898.

[2] Med. Chron., No. 2, 1898.

Palliative Treatment of Carcinoma Uteri.—Westermark[1] has been quite successfully applying Welander's method of treating soft chancres and other ulcerations rebellious to ordinary measures to inoperable cancers of the cervix. After curetting and ignocauterizing, he introduces into the crater of the cancer a small serpentine coil of lead or silver tubing, wrapped with a thin layer of cotton and connected by a rubber tube with a cotton receptacle containing water kept at a constant temperature, usually 52° C., by a gas-jet, while a second tube carries off the water, which is thus about 42° C. on the cancer. The apparatus is left working for 48 hours, the vulva being carefully protected from the hot water. The pain, hemorrhage, and fetid discharges were all completely arrested by this treatment; the cancer was cleansed, the infiltration diminished, and the general condition much improved.

[Calcium carbid has been used very largely by gynecologists in inoperable cases of cancer, and generally with gratifying results.] According to P. Petit,[2] it is an antiseptic of great power. It is a chemic substance, from which acetylene gas is now prepared. In contact with moisture, it rapidly disintegrates, gas being formed at once. This gas acts both as a caustic and as an anesthetic, and its application is not very painful. It will dissolve albumins, while mercuric chlorid, creasote, and silver nitrate coagulate albumin, and are thus prevented by their own action from coming in contact with diseased surfaces. A strong solution is made in the following manner: 3 oz. of fresh calcium carbid are added to 36 oz. of water. The mixture is shaken, and allowed to stand 1 hour. It is then filtered through double paper into a bottle holding 1 quart. This bottle should be of dark glass, and closed by a glass stopper, sealed with a little paraffin. For use, a glass of this strong solution is mixed with 9 glasses of hot boiled water, so that the whole shall have a temperature of 40° to 50° C. (105° to 122° F.). This solution may be employed in lotions, douches, compresses, and tampons, in vulvovaginitis, endocervicitis, both external and internal, and in inoperable cancer. It shortens the duration of acute inflammation considerably, and is particularly useful in the treatment of endocervicitis, with glairy mucous discharge. Such a solution of calcium carbid, the cost of which is almost nothing, is 10 times more valuable as an antiseptic than mercuric chlorid; and, being neither caustic nor poisonous, may be safely used for intrauterine injections in puerperal infection. The cervix is thoroughly curetted under an anesthetic, and the tissues dried as well as possible with absorbent cotton. A piece of calcium carbid is then placed in the cavity made by curetting, and packed firmly, as quickly as possible, with iodoform gauze, to prevent the escape of gas. The packing should remain 2 or 3 days, then be removed, and the parts thoroughly cleansed; the treatment is repeated and continued until all diseased tissue is destroyed. The other side of the subject is discussed by Ries,[1] who demonstrates the utter worthlessness of the remedy, as well as the dangers which may arise from its use. He shows that the action of the carbid is due to the decomposition of the preparation, on the addition of water (blood-serum), into acetylene gas and quicklime (CaO), which is further changed to slaked lime. Acetylene gas has absolutely no effect upon the tissues; but, mixed with air, it is highly explosive, and in contact with copper or brass forms an explosive combination, which precludes the use of instruments made of these materials. The action of quicklime is well known, having long been employed by irregulars and others in the composition of Vienna paste and other compounds, preparations which have generally been abandoned by the profession. Its effects are not limited by its own action, as is the case with nitric acid, so that the depth of the slough produced cannot be estimated nor regulated; the action is therefore liable to reach beyond the point intended and result in injury. Ries also shows that patients are not rendered more comfortable by the use of the carbid, nor is life prolonged. The author deplores the fact that, while no such claim is advanced by Ethridge, the idea is spreading among the profession that this remedy promises cure of carcinomatous conditions. This, he fears, will lead to further tinkering and loss of time in cases which, if subjected early enough to radical operation, might be saved. [In every case the greatest care should be taken to ascertain whether the disease is limited to the uterus, and, whenever possible, total extirpation should be practised.]

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[1] Sem. méd., Dec. 14, 1898.

[2] Jour. de Méd. de Paris, Dec. 11, 1898.

Dorland[2] has experimented with **organotherapy in inoperable carcinomas,** and concludes as follows: 1. The ovaries exert a curious and as yet incomprehensible influence over the tissues of the body, and especially over the mammary glands. 2. This ovarian influence is in part neutralized by the action of the thyroid gland or of thyroid substance introduced into the body. 3. The administration of thyroid extract alone to patients suffering from cancer of the mammary gland or of the cervix uteri which has passed beyond the possibility of extirpation by the knife, exerts a slight inhibitory action upon the growth, and results in a decided relief of the 2 prominent symptoms —pain and discharge. This action, however, appears to be but temporary. 4. The removal of the ovaries in cases of inoperable carcinomas, provided these organs be actively functionating, will result in many cases in an arrest of the progress of the malignant disease, or even in a total destruction of the neoplasm and an apparent cure of the condition. 5. This inhibitory action of oophorectomy in inoperable carcinomas is more decided if, at the same time, as much of the cancerous growth be excised as is possible, and the operations be supplemented by the administration of thyroid extract in full doses. 6. In older women, in whom there has already occurred atrophy of the ovarian stroma, excision of these organs does not result so promptly nor so favorably as in women who are passing through the period of sexual activity. 7. The relief afforded by the employment of Beatson's method appears in from 24 to 48 hours, and in favorable cases is rapidly progressive. 8. The dose of thyroid extract that may be safely employed varies from 10 to 15 gr. daily. 9. It would seem that, even though this method should not result in an absolute cure of the malignant disease, it would afford a longer lease on life and more effectual relief from suffering than would any other palliative operative procedure as yet devised.

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[1] Chicago Med. Recorder, Dec., 1898.

[2] Therap. Gaz., May 15, 1899.

Operative Treatment of Carcinoma.—Gellharn[1] reports the results of 39 cases of hysterectomy performed in Mackenrodt's clinic by means of the thermocautery, with 7 deaths. Seven cases of ureteric fistula resulted, and 3 of intestinal injury. There was no instance in which secondary hemorrhage occurred, and the pain after operation was unusually slight, the patient being up at the end of 4 weeks. The ultimate results of igniextirpation compare most favorably with those obtained by the ordinary methods. Three patients died from a return of the disease; but in no instance was there a recurrence in the cicatrix. Seven patients were well at the end of 2 years, 7 at the end of 1 year, and 4 at the end of 6 months.

J. C. Irish[2] believes that in all cases of cancer at the os the operation chosen should be abdominal hysterectomy. Entirely apart from the relative difficulties of the 2 operations, and the fact that vaginal hysterectomy is an operation of accident, such as injury of the bladder, intestines, and notably of the ureters (the latter occurring so often that it has given rise to a new abdominal operation; namely, one for implanting an injured ureter in the bladder)—aside from all these reasons that can be deduced in favor of abdominal hysterectomy, there is still another of far greater importance, and that is the direction of extension of malignant disease from the os. In a series of 25 abdominal sections for cancer of the cervix, he has found extension of infection in 4 cases out toward the pelvic wall, and a mass of infected cancerous tissue, probably glandular in its character, which was found not far from the internal iliac artery and very near the point where the uterine artery crosses the ureter. He has found this extension of disease on one side only, usually; and while in other cases more advanced there has been invasion of the structures under the broad ligaments above, still, in these 4 cases there was no other extension of the disease. By any vaginal examination, it was utterly impossible to locate or know of this extension. No such examination could possibly reveal its existence.

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[1] Centralbl. f. Gynäk., No. 52, 1898.

[2] Boston M. and S. Jour., Mar. 16, 1899.

C. E. Parslow[1] suggests a modification in the technic of panhysterectomy. The woman being placed in the lithotomy-position, the vaginal mucous membrane is incised all around the cervix, and the separation of the cervix is carried up as far as may be convenient; in many cases, however, it will be found that the cervix is so lifted up by the tumor as to be almost out of reach, and little can be done beyond incising the vaginal wall. This step has been advocated and practised by several surgeons; but the additional modification which Parslow suggests, and which had not been brought forward before, is that the vulsellum forceps which has been fixed in the anterior lip of the cervix should be left there until it has been reached by the finger from above in the second stage of the operation.

Vaginal Hysterectomy.—[The operation of vaginal extirpation of the uterus and appendages has been very extensively practised during the last few years, and the results attained have been very satisfactory. Originally introduced as a radical treatment for cancer, its scope has been extended to other diseased conditions, such as uterine fibroids (if below a certain size), chronic inflammation of the uterus with advanced bilateral diseases of the appendages, pelvic suppuration, and, lastly, intractable cases of prolapse. The improvements in technic have been followed by a great reduction in mortality. The best results have been obtained in extirpation for fibroids and inflammatory conditions, some operators having published series of 40 and 60 cases without a death. In cancer the mortality has been somewhat higher, especially if the disease has advanced beyond the early stages. It has also been clearly shown that for malignant disease extirpation of the uterus can only rank as a palliative procedure, since recurrence sooner or later is almost invariable. There can be little question, however, of the great relief and prolongation of life that are generally afforded by the operation.]

Longuet[2] divides the operations of vaginal hysterectomy into 2 classes: 1. Hysterectomy with preventive hemostasis, often with morcellement (extirpating the uterus in many fragments). 2. Hysterectomy without preventive hemostasis and without morcellement (extirpation in 1 or 2 fragments). He advocates the second method, particularly as performed by Quénu. The steps are as follows: 1. Vaginal incision. 2. Liberation of the uterus, separation from the bladder and rectum. 3. Lowering of the uterus and median hysterectomy. 4. Control of hemorrhage by ligation, and removal of the 2 fragments of the uterus. Quénu condemns the use of clamps, as he desires union by first intention. 5. Closure of the hernial opening: (*a*) Closing the peritoneal opening with a purse-string or a continuous suture; (*b*) approximation of the broad ligaments as a means of intraabdominal support; (*c*) the formation of a vaginal vault. After the hysterectomy is complete he performs anterior and posterior kolporrhaphy. The after-treatment consists in the use of vaginal tampons for the 3 weeks that the patient remains in bed. The catheter is used for 48 hours. The operation must not be performed unless the clearest indications exist. In these selected cases the mortality is almost nil, and relapses very infrequent.

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[1] Lancet, Feb. 4, 1899.

[2] Gaz. des Hôpitaux, Sept. 27, 1898.

Strauch[1] describes the following modifications of the usual technic: After separating the bladder and opening the anterior and posterior culs-desac, the bladder is protected with a speculum and the uterus is drawn downward (the organ being bisected or morcellated, if necessary), so that an elastic ligature can be passed over each broad ligament. The ligature is tied as tightly as possible, and in its loop is secured a piece of stout silk. It is necessary to leave a large stump, in order to prevent slipping. The usual gauze tampon is inserted. The patient is allowed to sit up on the ninth or tenth day; and the gauze and elastic ligatures usually come away at the end of 2 weeks with the distal ends of the stumps. The writer has operated by this method in 23 cases of benign neoplasms and diseased adnexa without meeting with any complications. It is, of course, not applicable to cases of malignant disease. He no longer removes the diseased tubes and ovaries by the abdominal route, because his results have been so unsatisfactory.

Tuffier[2] reports 27 cases of vaginal hysterectomy operated upon by the following method: The uterus is first freed from adhesions, is bisected in the usual manner, and one-half is drawn out of the vulva. The finger is passed behind the upper part of the broad ligament, and the included tissue is grasped between the jaws of a powerful clamp, called the *angiotribe*, which is tightly screwed. The tissues are thus destroyed and the ovarian artery occluded. The lower portion of the ligament is then seized with the instrument, guarded by the finger as before, and the included tissues, with the uterine artery, are similarly compressed. The same procedure is carried out on the opposite side. The uterus is thus detached, and can easily be removed without fear of hemorrhage. In short, the same technic is employed as in an ordinary clamp-operation, except that the clamps are not left in position. In complicated cases, in which morcellation of the uterus is necessary, the broad ligaments are first secured with clamps, which are removed in time from below upward after the included tissues have been caught and crushed with the angiotribe. Two cautions are added in using the instrument—to screw the handles as tightly as possible, and to keep the blades in the axis of the vagina, so as not to tear the tissues outside of their grasp. In none of the reported cases did any accident occur during the operation, the ab-

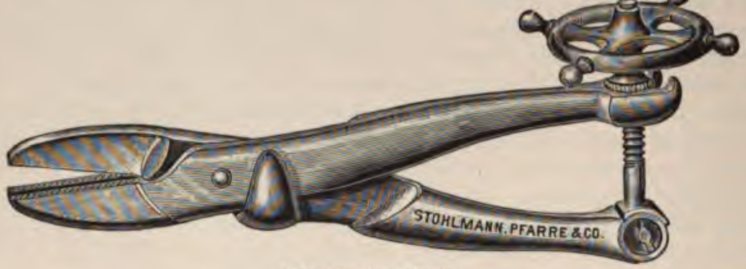

FIG. 66.—Angiotribe.

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[1] La Gynéc., Apr. 15, 1898.

[2] Rev. de Gyn. et de Chir. abdom., No. 4, 1898.

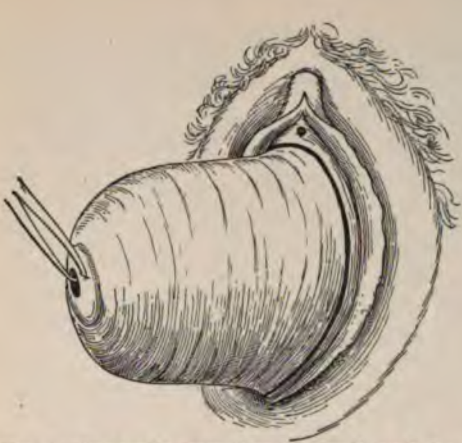

FIG. 67.—The cervix grasped and drawn through the vulva.

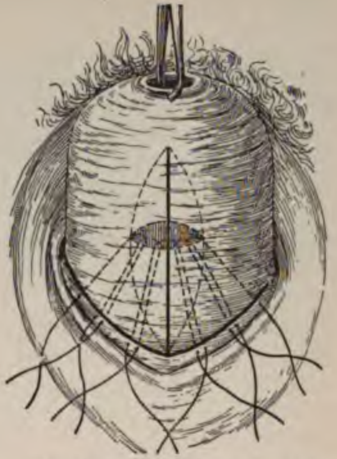

FIG. 68.—Incision on the posterior vaginal wall. Stitches for closing the peritoneal surfaces.

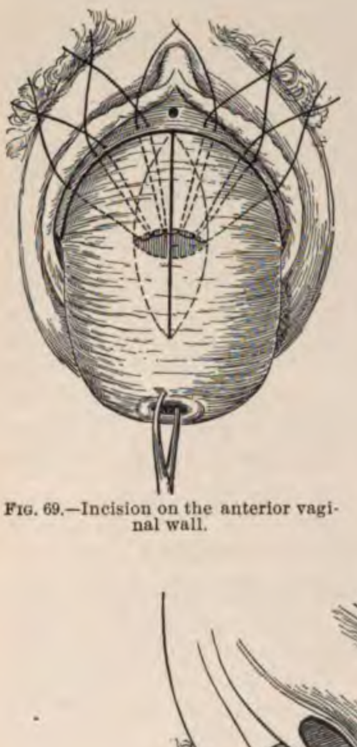

FIG. 69.—Incision on the anterior vaginal wall.

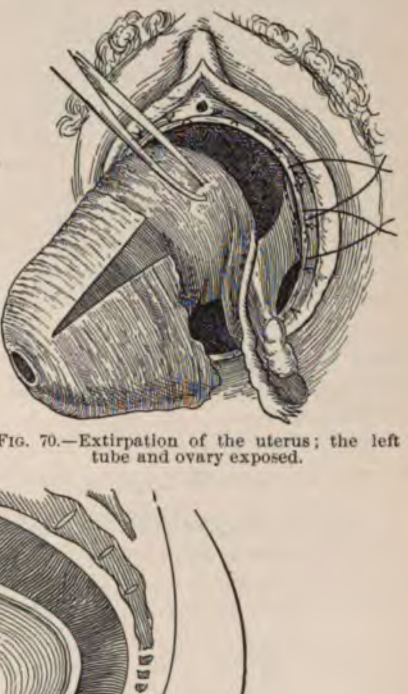

FIG. 70.—Extirpation of the uterus; the left tube and ovary exposed.

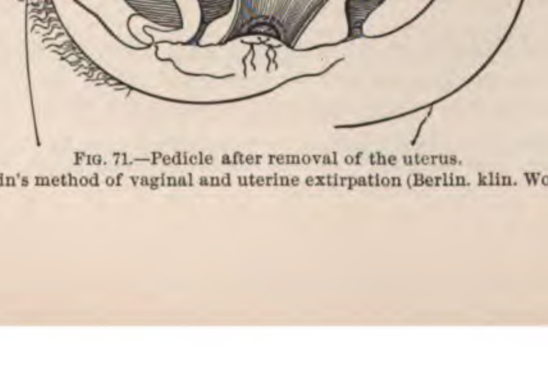

FIG. 71.—Pedicle after removal of the uterus.

FIGS. 67-71.—Martin's method of vaginal and uterine extirpation (Berlin. klin. Woch., Oct. 3, 1898).

sence of hemorrhage being especially noted. The author believes that this method is applicable to any case in which vaginal hysterectomy is indicated. [It is too early, as yet, to pass upon the merits of this instrument. While claiming some advocates in this country, the majority of operators are holding aloof.]

Martin[1] describes a new method of extirpation of the vagina and uterus for cancer, and reports a case. He first makes an incision around the introitus, and then, with the finger, detaches the vagina from the rectum and bladder. After the vagina has been detached, the uterus is extirpated in the usual manner, the peritoneum is stitched together from the top of the wound, and the vagina is then obliterated transversely. His patient, who was 61 years old, made an uninterrupted recovery, and 6 months later there had been no recurrence. He believes the operation to be valuable, not only for malignant diseases, but also for the treatment of extreme prolapse. He says that it is exceedingly simple and free from technical difficulties. He has used it in 6 cases of prolapse. The steps of the operation are shown in Figs. 67–71.

Van der Hoeven[2] considers that Brennecke relied upon pure theory when he asserted that the ovaries, of necessity, undergo atrophy after vaginal hysterectomy. As a rule, it appears the tube and ovaries seem to cause no trouble. After Péan's operation for pelvic abscess, fistulous tracts may develop, but they heal spontaneously. Though the appendages may be absolutely healthy when the hysterectomy is performed, they sometimes become subject afterward to the disease for which that operation was undertaken. Hematosalpinx may develop ; or even, as in Wendeler's case, tubal pregnancy. Several cases of serous cyst of the pelvis developing after vaginal hysterectomy or abdominal section have been reported. These records show, however, that they are not solely the result of the former operation. Van der Hoeven has described 4 such cases, 3 after vaginal hysterectomy ; and these were respectively diagnosed as parovarian cyst, ovarian cyst, and hydrosalpinx. The serous cysts were extirpated successfully. As a rule, operation is best ; but hot irrigations are of benefit. The symptoms are pain and swelling, and also usually fever.

AFFECTIONS OF THE PELVIC VISCERA.

Pelvic Examination in an Inclined Position.—Jayle[3] says that there are great advantages to be gained in the examination of difficult gynecologic cases from an inverted inclined position of the patient. This position is essentially that known as Trendelenburg's, except that the patient, instead of hanging by her knees, rests with her shoulders against 2 blocks, while the head is raised upon a cushion. This avoids the unpleasant rush of blood to the head ; and at the same time it leaves the pelvis free from any strain and easily movable as the examiner may desire.

Anatomic Points in Abdominal and Pelvic Surgery.—C. E. Ruth[4] says that no man should for a moment think seriously of engaging in abdominal and pelvic surgery who has not a thorough understanding of the relations of the normal peritoneum and all organs within the cavities he is to explore. He will at times find these familiar and usual landmarks obscured or obliterated. Then it is that the smallest hint may serve him for a guide; and he should be able to avail himself of it in time to save his patient's life and his own credit, and give his patient the best chance for future usefulness. When the uterus is readily found, but ovaries and tubes are buried in dense adhesions, connected to intestines, etc., it is usually much safer, and many times easier, to open into the broad-ligament space by cutting the Fallopian tube, between ligatures, close to the uterine cornua, and begin enucleation in the connective-tissue space on the upper side of the tube, beneath the peritoneum, working all the time, when possible, beneath the peritoneum, in this connective- and areolar-tissue space. In abdominal work, it becomes important to determine quickly which is the stomach-end of a given loop of intestine. If we keep in mind the parietal attachment of the mesentery, extending from the left side of the spinal column on a level with and close to the body of the second lumbar vertebra, and extending thence downward to the right, obliquely across the spinal column, to end at the right sacro-iliac articulation or in the right iliac fossa, we will have a basis for immediate determination of the point in question. If the loop be brought up until the mesentery is taut, with the loop parallel with the long axis of the body, the index-finger should be passed into the abdomen by the side of the loop, keeping the palmar surface in close contact with the mesentery as the finger is passed down to its posterior attachment. If the finger remains all the time on the side at which it started, then up is up and down is down. If, however, it passes across to the opposite side, then up is down and down is up, or the lower is the stomach-end. Should there be one, or more than one-half, turn or twist in the mesenteric loop, it (the turn) and its direction is at once detected by the finger. [This article is peculiarly valuable, and well worth the time consumed in its perusal.]

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[1] Berlin. klin. Woch., Oct. 3, 1898.

[2] Centralbl. f. Gynäk., No. 35, 1898.

[3] Presse méd., June 22, 1898.

[4] Jour. Am. Med. Assoc., Sept. 3, 1898.

Smooth Muscle-fibers in the Broad Ligaments.—Blumberg and Heymann[1] describe the arrangement of smooth muscle-fibers in the broad ligaments of the fetus in man and mammals, as found in extended observations. They state that in the embryo these muscular bands assist in the descent of the ovaries by fixing these organs during the growth of the body. After birth they assist in supporting the genital organs. The round ligaments are actively concerned in keeping the uterus in its normal position. The infundibulopelvic and infundibuloovarian ligaments support the ovary and tube in common; the ovarian ligament, the ovary alone; the latter also insures the entrance of the ovum into the tubes.

Painful Intraperitoneal Adhesions.—Novè-Josseraud and Goinard[2] describe under this head slight adhesions resulting from localized peritonitis following lesions of the alimentary canal or accompanying affections of the female pelvic organs. They may give rise to no symptoms whatever; but usually some neighboring organ is more or less affected. Pain is most often present, persistent, well localized, and increased on deep pressure; but it is not colicky in character. At other times the pain may be dull, with occasional paroxysms, suggesting hepatic or renal colic. The paroxysms may coincide with the periods of physiologic activity of the abdominal viscera. Constipation is more or less marked if the intestines are adherent; due not so much to occlusion of the gut, as to exaggerated peristalsis. Certain obscure vesical troubles are doubtless due to adhesions of the bladder. The diagnosis is exceedingly difficult, often impossible, without resort to an exploratory incision; but the presence of adhesions may be suspected in the presence of persistent localized pains following an attack of peritonitis or a celiotomy. It is important to exclude hysteria, especially if operative interference is contemplated.

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[1] Centralbl. f. Gynäk., No. 46, 1898.

[2] Jour. de Méd. et de Chir., Apr. 25, 1898.

Differential Diagnosis of Pelvic Peritonitis and Pelvic Cellulitis.—E. Van der Warker[1] gives the following differentiating points:

PELVIC PERITONITIS.	PELVIC CELLULITIS.
Following labor or abortion in a few days.	Eighteen to 20 days after.
Beginning in a rigor.	No rigor (Bernutz).
Severe fever, face pinched, prostration.	Less fever, no facial nor general reaction.
Pain acute, sharp.	Pain dull, throbbing-like, beginning abscess.
Great tenderness of abdomen.	Lesser tenderness.
Tumor usually behind pubis.	Tumor usually in iliac fossa.
Tumor, as a rule, not above pelvic brim.	Tumor at or above brim.
In early stage, more evident in vaginal culdesac.	In early stage, less evident in culdesac.
Suppuration rare.	Suppuration very frequent in phlegmons (Bernutz).
Purulent pelvic peritonitis attended with symptoms of peritonitis.	No symptoms of peritonitis.
Purulent mass, intraabdominal.	Purulent mass in iliac fossa, subperitoneal.
Pus confined.	Pus often diffused and burrowing.
Pus tends toward viscera, or encysted.	Pus tends toward abdominal wall or deep iliac fossa.
No retraction of thigh.	Retraction of thigh.
When mass extends into the iliac fossa, it is not well defined.	In cellulitis, always well defined.
Tumor elastic or fluctuating.	Tumor more solid.
Always uterine displacement with periuterine mass.	May be absent with very large pelvic mass.
Never involves abdominal wall.	Often involves abdominal wall.
Relapses from slight causes frequent.	Relapses rare.
Sometimes an intestinal percussion-note over mass.	Dull on percussion.
Never extends to vaginal wall.	Extension of cellulitis from broad ligament or iliac fossa into vaginal wall.
Often associated with specific infection of vagina.	Usually no specific infection.
Occurring without lesion of genitalia.	Often following lesion.
Pain always intrapelvic.	In addition, pain in anterior and inner side of thigh to leg and foot.
Phlebitis not observed.	Phlebitis an occasional complication.

Senile Changes in the Fallopian Tubes.—E. Schnaper[2] points out that, while the senile changes in the uterus and ovaries have been fully investigated, little has been discovered regarding those in the Fallopian tubes. He has been able to find references to these changes only in the researches of Ballantyne and Williams, and of Grusdew. He examined the tubes from 20 women, varying in age from 47 to 90 years. In each case he investigated the structure of the uterine end, of the middle part, and of the abdominal extremity of the tube. He found in the mucous membrane changes very similar to those that occur in kolpitis senilis: there was partial loss of the surface-epithelium, more or less marked growth of connective tissue, and a bridging across or complete closure of the lumen of the organ. Unlike Ballantyne and Williams, Schnaper did not find an almost complete withering of the longitudinal musculature of the tube, but there was nearly complete disorganization of both the circular and the longitudinal layers. An ingrowth of connective tissue splits the musculature into the islands; and there is more or less marked thinning of the wall of the tube. Two neighboring tubal folds that have lost their epithelial covering in part may become united by their apices, and so give rise to the appearance of glands. In the adventitia of the vessels, just as in the musculature, there is seen a process of growth of granulation-tissue, followed by shrinking. As a result of these senile changes, it is no longer possible to recognize a clear distinction between the 3 parts of the Fallopian tube.

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[1] Am. Gyn. and Obst. Jour., Mar., 1899.

[2] Centralbl. f. Gynäk., Nov. 5, 1898.

Salpingitis.—E. Hall[1] states that chronic salpingitis is painful for 2 reasons: First, on account of the exudations causing adhesions with the neighboring organs; secondly, on account of distention of the tube, usually at the menstrual period. One fact appears to be beyond dispute—that small and lax adhesions, like the existence of serous exudations, are insufficient in themselves to cause pain. It seems that active inflammation and the presence of infection are needed to make this condition painful. The prolapse of the tube toward the culdesac is always troublesome, and at least causes slight pain and uneasiness. We should notice the probability of making a wrong diagnosis in salpingitic pain. The patient might complain of pain in 1 side of the pelvis, when, upon examination, inflammatory exudation or a tumor may be discovered upon the other side. He has seen a displaced tube lying across the posterior face of the uterus in such a position that its pavilion, extended by exudation, formed a tumor which was fixed to the pelvis on the opposite side. The pain in this case was located in the fine nerves which are distributed upon the tube through the corresponding ligament. The pain of salpingitis is generally fixed, and undergoes increase during menstruation; not previous to it, as in ovaritis. But after menstruation it undergoes marked decrease, and reappears 2 or 3 days later. This latter pain is caused by traction of the adhesions which fix the tube to the pelvis.

Linguen[2] concludes, from examinations of a number of diseased tubes, that the tube is not simultaneously infected throughout its entire length, but that the infection begins at the abdominal end. Each tube may be the seat of a different infection at the same time; thus, a simple catarrhal salpingitis may exist on one side and a pyosalpinx on the other, no difference in the secretion being revealed by the microscope. While gonorrhea and puerperal infection are the most frequent causes of salpingitis, it is not always easy to find the characteristic microorganisms, probably because the latter often succumb to their own toxins, so that the pus becomes sterile.

Gonorrheal Salpingitis.—J. W. Taylor,[3] in considering the question of the curability of gonorrhea in women, relates the history and outcome of an inquiry extending over many years, and maintains the following propositions: 1. That a large number of women who are suffering from tubal disease have been at some time or other exposed to the infection of syphilis as well as of gonorrhea; that these undoubtedly show marked improvement after a prolonged course of mercury and iodid; and in the course of this treatment, unless acute pyosalpinx intervenes (in which case medicine is useless), it is the rule, rather than the exception, for all gross physical signs of disease to disappear slowly and permanently. 2. That many cases in which there is no history of syphilis, including cases in which there is the unmistakable history of gonorrhea, pure and simple, as the sole cause and starting-point of tubal disease, do similarly improve and get permanently well under the same course of treatment; provided always that the disease stops short of acute pyosalpinx and its dangerous complications. 3. That acute pyosalpinx is peculiarly liable to occur, in the first place, on the left side of the body; and its special severity is probably due to secondary infection from the rectum; that such cases, whenever possible, should be treated by free incision of the posterior vaginal fornix, by thorough exploration and emptying of all pus-cavities from the pouch of Douglas, and by iodoform-gauze drainage; and that this is far preferable to the older operation of removal of the appendages, which is not only much more dangerous, but is peculiarly liable to be followed by fecal fistula, an operation-sequel sometimes worse than death itself. 4. That such cases of mixed infection and acute suppuration treated by operative evacuation of the pus, with or without removal of the appendages, do sometimes not only recover, but remain permanently well without further treatment, the acuteness of the inflammation appearing to terminate the process of infection. In other cases recovery is not so complete, and relapses are met with; and these cases should be followed up by a course of specific treatment, the beneficial result of this being often immediately manifest when the wound-tissues are unhealthy and healing is delayed. 5. That occlusion of the tubes and peritubal adhesions consequent on gonorrheal salpingitis have no direct specific causation, and must be regarded rather as secondary mechanical results of the local peritonitis that has been caused by salpingitis. Their absorption and disappearance will not, therefore, be secured by the cure of the gonorrhea, and sterility may persist, although gonorrhea may be entirely eradicated from the system. 6. That in gonorrhea of the pelvis there will probably remain a residuum of intractable cases, particularly cases of complication with other diseases, such as fibroids of the uterus; that in these cases operative removal of the organs affected will still be required; and that vaginal hysterectomy, whenever possible, with or without removal of the appendages, is not only the most rational operation in theory, but is productive of the best final results.

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[1] Canad. Pract. and Rev., Jan., 1899. [2] Jour. d'Obstét. et de Gyn., No. 2, 1898.
[3] Lancet, May 20, 1899.

Primary Carcinoma of the Fallopian Tube.—Doran[1] has collected all the published cases—23 in number—in 20 of which carcinoma developed in a tube that presented no other evidences of disease. In 3 cases the disease probably extended to the ostium from an adherent ovarian cyst that had undergone malignant degeneration. One patient was free from recurrence 7 years after operation; 4 were alive from 1 to 1½ years after; while all the rest died within 1 year after extirpation of the affected tube. He also believes that carcinoma of the tube may arise from papilloma, such as occasionally develops in an old hydrosalpinx. In the tables he prepared, the patients were 60 years old in 20 out of a total of 25 cases, and between 56 and 59 in 2 more. He thought that Dolèris was correct in distinguishing an endosalpingitic papilloma, and had himself demonstrated the relation of papilloma to inflammation as long ago as 1879, and noted the malignant degeneration of papilloma in 1888. He has recently come across a case of papilloma of the tube associated with malignant tumor of the broad ligament. He doubted whether cancer had ever been seen to develop in a previously healthy tube. Cullingworth said that the question as to the connection between papilloma and carcinoma could scarcely be settled until an opportunity occurred of examining a carcinomatous tube at an early stage.

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[1] Med. Press and Circ., vol. cxvi., No. 19.

Papilloma of the Fallopian Tube.—Dolèris and Macrez[1] report a third case of this rare condition, previously described by Sutton and Doran. They conclude that this papillomatous condition of the mucous membranes of the tube, due to salpingitis, is probably not so infrequent as is usually supposed. It is often attended by a profuse watery vaginal discharge, as well as by an intraperitoneal effusion. Tubal papillomas are benign, like those on the external genitals. They result from chronic salpingitis of a low grade, unaccompanied with inflammatory reaction or pain, the health of the patient being usually not affected. On account of their obscure pathology, they deserve careful study.

J. G. Clark[2] states that up to the present time only 6 cases of simple nonmalignant papilloma of the Fallopian tube have been reported, abstracts of the histories of which, accompanied by a very excellent resume of the salient points of the subject, have been made by Sänger and Barth.[3] Of these cases, 3 have been reported by Alban Doran, 2 by J. Bland Sutton, and 1 by Dolèris. Doran, who first called attention to the subject, inclined to the theory that these growths are not so much tumors, as a simple hyperplastic process produced by chronic inflammation. According to Sänger and Barth, the differential diagnosis in these cases is rendered difficult on account of the tendency of all new growths of the Fallopian tube to assume a papillary appearance; in this case, however, its nonmalignant character is so evident that its recognition is comparatively easy. The early stages of primary carcinoma, before the epithelial cells have deeply penetrated the underlying tissue or have formed metastatic foci in adjacent parts of the tube, may closely simulate the nonmalignant papillary growths, especially when the latter possess the low wart-like form first described by Rokitansky and Hennig. On account of the marked tendency, as pointed out by Williams, which papillomas of the ovary show to undergo cancerous degeneration, these growths of the tube must also be looked upon with suspicion, for even if they do not become malignant, they may give rise to transplantation-growths to the peritoneum, which may so seriously impair the function of this organ as to cause death.

The Appendix and Adnexal Disease.—Barnsby[4] describes those cases in which disease of the appendix seems to be secondary to inflammatory conditions of the tubes and ovaries. He is skeptical regarding the existence of the so-called ligament which Clado affirms extends from the right ovary to the appendix and serves to establish a direct lymphatic connection between the two, having examined 127 cadavers without finding it in a single instance. The appendix and left tube and ovary are entirely independent anatomically, though they may become adherent after prolapse of the former or ascent of the latter through the traction of bands. After such adhesion has occurred, the appendiceal mucosa may be infected in the usual manner from within, or inflammation may extend from the diseased adnexa to the appendix. In the latter condition there is a simple adhesion of the tip of the appendix, attended with hyperemia and the subsequent formation of new connective tissue. In more advanced cases the entire appendix may be surrounded by exudate, with resulting cirrhosis and disappearance of the lumen. There are no pathognomonic symptoms. Celiotomy is always indicated. The writer concludes with the advice to examine the appendix in every case in which the abdomen is opened, and to remove it without hesitation whenever the tip is adherent to the tube or ovary, whether its serum-covering is congested or not. [The frequency with which the appendix is encountered in pelvic surgery renders highly probable the important role played by tubal disease in the etiology of appendicitis. Recurrent right-sided pelvic pain should lead the gynecologist to inquire into the condition of the appendix as well as of the uterine appendages.]

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[1] La Gynéc., Aug. 15, 1898.

[2] Bull. Johns Hopkins Hosp., July, 1898.

[3] Die Krankheiten der Eileiter, 1895.

[4] Rev. de Gyn. et de Chir. abdom., Nos. 5 and 6, 1898.

Monod and Vanverts[1] conclude as follows: A pelvic appendicular abscess may accompany a periappendicular abscess situated in the iliac fossa; or it may exist alone and be entirely intrapelvic. In the former case the classical incision in the loin should be made; if it is feared that drainage will be imperfect, a counteropening may be made in the vagina at once, though it will usually be done later. If the appendiceal abscess is intrapelvic, a vaginal incision should be made when practicable; the abscess should never be punctured through the rectum unless spontaneous rupture into this canal is imminent. In male subjects and in young girls the abdominal incision alone is possible, the precaution being taken to peel off the peritoneum down to the level of the superior strait before opening the abscess. A counteropening might be made in the ischiorectal fossa, as suggested by Pollosson.

The Treatment of Pelvic Diseases. — Labadie-Lagrave and Legueu[2] extol the use of cannabis indica in pelvic troubles in which a soothing remedy is required. It may be used with belladonna for this purpose. Given by the rectum, these medicines act promptly, and, so far from having a constipating effect, they rather favor a stool. In painful disorders of the ovaries, cannabis indica will not only give local relief, but will also stop the headache and feeling of restlessness which so often accompany pelvic troubles in the female. For the irregular and painful menstruation which is so often seen at the age of puberty, the cannabis indica may be administered with belladonna, with the result of reducing an excessive flow of blood and causing the pains to disappear. These drugs are equally valuable at the menopause. Some patients will tolerate only a very small dose of belladonna.

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[1] Arch. gén. de Méd., May, 1898.

[2] Rev. de Thérap., July, 1898.

L. Pincus[1] recommends, in the treatment of inflammatory exudative pelvic affections, recumbency on an inclined plane, combined with compression of the pelvic organs from the exterior and also from the vagina. For inflammatory infections of the adnexa, in the first place, Pincus desires nonoperative treatment. The conditions necessary for unburdening the pelvic organs are completely fulfilled by positio in plano inclinato cum compressione (*Belastungslagerung*). The inclined plane is arranged by raising the foot-end of the bed 15–35 cm.; the external compression, by elastic bandages, adhesive plaster, a bag filled with shot or moist potters' clay, from 1 to 5 kg. weight; the internal compression, Pincus obtains with Gariel's air-pessary, a colpeurynter, or, preferably, by Bozemann's columnization or graded tamponade; gynecologic massage is also recommended as an auxiliary means in chronic disease. He indicates as the peculiar field for this treatment chronic pelvic exudations (peliocellulitis, parametritis, pelioperitonitis, and tubal affections); but it has, in his experience, been of great service in many acute inflammations. In irritable conditions of the peritoneum it is contraindicated.

Pelvic Massage.—An interesting discussion upon this subject occurred on Jan. 18, 1899, at the joint meeting of the Chicago Medical Society and the Chicago Gynecological Society. Arguments were presented both for and against the practice, but the consensus of opinion of the societies was in favor of pelvic massage in well-selected cases. The principal objection to its use was presented by Franklin H. Martin, who represented the practice as "immoral" and tending to degrade womankind. There is no doubt that the procedure can be practised to the moral as well as to the physical detriment of the patient; but if the method is productive of good results in the treatment of certain pelvic disorders, it should not be condemned because there are physicians who abuse their privilege, thereby degrading themselves and bringing shame and remorse to the patient. If pelvic massage is of value as a therapeutic agent, the profession should be informed of its indications and contraindications, and of the technic of the procedure, and then in this, as in many other therapeutic practices, we must trust to the honor of the physician.

F. H. Westerschulte[2] remarks that in all affections in which operative procedures lead *more quickly and without evil consequences* to a certain cure, these ought to be undertaken; furthermore, that any acute inflammatory condition and the existence of an infectious focus strongly contraindicate massage. As some of the special indications for pelvic massage, however, may be mentioned: old exudates, the sequels of pelvic cellulitis; chronic affections after perioophoritis and oophoritis, and displacements of the uterus. In chronic metritis and endometritis the results of pelvic massage are also very favorable. In the last-mentioned affection, massage will, however, sometimes constitute the after-treatment of curettage. In subinvolutions of the uterus, undeveloped conditions of the pelvic organs, where, in the majority of cases, we do not succeed with other means, excellent results have been achieved by massage. Tenderness of stumps after operations, or any tenderness in the pelvis, will be effectually removed by this method.

Abdominal Section.—1. *Asepsis and Antisepsis.*—As the result of a bacteriologic study of the body of the uterus in 68 nonpregnant women, Miller[1] has reached the conclusion that, in uncomplicated cases of hysteromyomectomy, hysterectomy for inflammatory conditions, or ovarian tumors, operations for extrauterine pregnancy, and in all such cases in which the vagina and cervix are normal, except probably for the invasion of the gonococcus, the safest route, so far as infection is concerned, is the abdominal. On the other hand, in operations for carcinoma, especially when the cervix is necrosed, in submucous myomata, especially if the tumor encroaches on the cervix, and in similar cases of polypi, etc., in puerperal cases in which hysterectomy is to be performed, and in circumscribed pelvic abscesses which are liable to secondary infection from the intestine, the safest route, with regard to infection, is the vaginal. As the external genitalia and the surrounding parts are even more liable to be the seat of certain pathogenic bacteria than the abdominal wall, cleansing and disinfection of these parts are as imperative as the cleansing of the abdomen preparatory to operation. Drainage through the vaginal vault in cases of celiotomy, unless imperative to arrest hemorrhage, or in cases of wound of the intestine in which the suturing is unsatisfactory, is almost as much to be deprecated as drainage through the abdominal wall. The vaginal vault should, when possible, be left intact.

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[1] Zeit. f. Geb. u. Gynäk., vol. xxxix., No. 1.

[2] Jour. Am. Med. Assoc., Jan. 28, 1899.

Ahlfeld[2] wonders that surgeons assign so little value to alcohol as a disinfectant. The statement of Mikulicz, that it does not destroy the bacteria in the deeper layers of the skin, he believes to be erroneous. Alcohol having a strength of 96% is preferable to weaker solutions. Bichlorid solution is unnecessary; and other antiseptics, in order to be efficacious, must be used in such strong solutions as to injure the hands. The writer believes that the method of disinfection by scrubbing with soap and hot water, and then with alcohol, will be preferred in the future by both surgeons and midwives. Moreover, brushes, catheters, intrauterine tubes, etc., can be disinfected in the same way. A 50% solution of alcohol is useful for disinfecting the external genitals in obstetric practice. Tjaden[3] believes that alcohol is a good germicide, as well as a mechanical cleansing agent. From a large number of bacteriologic experiments, he infers that 75% and 90% alcohol have a more powerful bactericidal action than either 50% or absolute. He recommends Fürbringer's method. Berndt[4] gives the following suggestions: Avoid all contact with septic objects. Use scissors and forceps in removing dressings, never the fingers; and always moisten them beforehand with warm salt solution, preventing infection of the fingers with dry floating particles. If the fingers must be used, rub them well with vaselin, and cleanse and disinfect them at once afterward. Operate dry. Have the instruments lying ready on dry aseptic cloth, after having been boiled in soda solution. If they become smeared with blood, it is not necessary to remove it unless it interferes with the operation, when they should be laid a few moments in boiling soda solution, which should always be at hand. Vulpius, in the same number, asserts that he considers lisle-thread gloves of great assistance in securing asepsis during operations that are not liable to be flooded with blood, as the gloves keep the hands sterile as long as they are dry. They are especially useful in orthopedic operations on the extremities. He also uses a hood or capote, with no opening except for the eyes, for all operations except very prolonged ones (when they would become oppressive), calling attention to the "rain of bacteria" that follows the accidental brushing of the operator's head against that of an assistant. Still another precaution is the covering of the surface around the field of operation with an impermeable cloth before laying the sterile compresses around to wall off the field. He has found that, if these sterile compresses become moistened with dripping water or blood during the operation, they suck up germs from the skin beneath, which is prevented by the impermeable covering.

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[1] Bull. Johns Hopkins Hosp., Jan., Mar., 1899.
[2] Zeit. f. Medicinalbeamte, Hefte 17 u. 18, 1898.
[3] Zeit. f. Geb. u. Gynäk., Band 38, Heft 3.
[4] Münch. med. Woch., May 10, 1898.

2. *Technic.*—Before a major operation, Hanks[1] uses the following method of "moderate and judicious stimulation" in all cases: Commencing 6 hours before the operation he administers from **1** to 3 teaspoonfuls of whiskey in **1** oz. of hot water, every hour, until the time for operation; and 2 hours before the operation he passes into the rectum, "high above the brim, if possible, from 1 to 2 oz. of whiskey in 4 oz. of warm normal saline solution, adding, when it may be wise, a little tincture of opium." He believes that patients so prepared recover more quickly from the ether-narcosis, and generally return to complete consciousness in less than 1 hour. [Such a course is also valuable in controlling the nausea and vomiting dependent upon the anesthetic.]

A. P. Clarke[2] states that in operating on cysts or on morbid growths developing between the broad ligaments it becomes necessary, in order to avoid injuring the ureter and some of the more important bloodvessels, to exercise as much care as is required in cases of disease demanding hysterectomy. In those cases in which numerous adhesions have occurred as the result of inflammatory or other morbid processes, a loop of intestine may be found entangled in the mass; such cases always necessitate the employment of special precaution lest, in the course of extensive manipulation to free the parts, undue violence result to important structures involved. In those cases in which the cysts or growths are only partially intraligamentous, removal by enucleation can be effected more rapidly. The cavity or bed of the tumor should be obliterated by suturing its sides together; in cases of such a character, it will rarely be necessary to ligate previously the ovarian or other large arteries.

In performing suprapubic hysterectomy, P. F. Chambers[3] recommends the following method: The abdomen being opened by a free median incision, and the patient placed in Trendelenburg's position, the uterus is drawn up as far as possible out of the pelvis. Two clamps are then applied upon the broad ligament of 1 side of the ovary, the point of the latter touching the uterus. An incision is then made between the clamps, down to the point of the outer clamp, without loss of blood. After the same procedure is repeated upon the other side, an incision can be made across the anterior surface of the uterus from clamp to clamp, freeing the peritoneum and posterior bladder-wall, which then can be easily peeled off down to the vaginal junction with the operator's finger-nail or the handle of the scalpel. The uterus is then cut across and removed. In the great majority of cases the 2 clamps left, 1 upon each broad ligament, will be found to have controlled all hemorrhage, and protruding from between the jaws of the clamps will be seen the open mouths of the bloodvessels. These can be easily picked up by artery-forceps, and, after the clamps are removed, ligated with small chromicized catgut. By the use of the Paquelin cautery, the cervical canal is enlarged, and, with a small piece of iodoform gauze, drainage is established through into the vagina. The peritoneal layers are then brought together by running catgut sutures anteroposteriorly, so that the stump is covered and all raw surfaces are inclosed. The abdominal incision is closed with 1 line of silkworm-gut suture. The operation is easily performed; it leaves a good floor to the pelvis; and there is no sloughing from the ligatures. Patients can usually sit up within 10 days.

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[1] Am. Gyn. and Obst. Jour., Sept., 1898.

[2] Va. Med. Semi-monthly, Nov. 25, 1898.

[3] Med. Rec., Mar. 5, 1898.

E. S. Bishop[1] advocates the sealing of abdominal wounds with celloidin—a transparent, closely adherent film, with strongly contractile qualities, claiming a decreased area of the scar. It tends also to contract the skin-vessels immediately around the line of union, so limiting the tendency to overfulness of those vessels after traumatism. Its main advantage after the cardinal one of aseptic closure is its transparency. Even if the asepticity of the work is not perfect, it is an advantage to be able to see at once through the transparent dressing where it is faulty. Increased redness and heat are easily recognized, while the tension of increased swelling is quickly appreciated by the patient in its earliest stage, the celloidin being very resistant. The only drawback to its use has been its tendency to produce small blisters at its edge. The celloidin-plate, as it sets, contracts and drags upon the skin in all directions toward the line of union. Its edge frills, and at this point small blisters will rise during the first 2 days. [This, like the silver-leaf dressing, is an unnecessary adjunct to treatment. The plain dry dressing answers every purpose.]

3. *Ligatures.*—Kelly[2] says that in the abdominal incision he has long used catgut throughout, in 3 or in 4 tiers, for incisions 2 in. long or under; in longer incisions, in approximating the fasciæ and recti, he divides the wound up, as suggested by Russell, by silver-wire mattress-sutures, placed about ½ in. apart, and then uses catgut in between. The wire takes the tension, and the catgut secures accurate union between.

Noble[3] states that to secure the best results with silk ligatures certain definite principles must be followed. The silk ligatures must be sterile. This has been accomplished by the method of fractional repeated sterilization. The ligature-silk must be fine. If heavy pedicle-ligature is employed, abscesses about the pedicle and ligature-sinuses are inevitable in septic cases. This is partly due to the fact that it is more difficult to encapsulate heavy ligature than fine ligature, and not less to the fact that the temptation to include large masses of tissue in the ligature is irresistible when heavy silk is employed. If fine silk is used, it is essential to include only a small amount of tissue in the ligature, as otherwise the ligation is insecure. The devitalization of large masses of tissue by heavy ligatures, and the difficulty of encapsulating these ligatures, explain the relative frequency of pedicle-abscess and ligature-sinuses when this method is employed. The use of fine silk, the ligation of small masses of tissue, and careful toilet of the peritoneum, including a careful washing of the pelvis with salt solution as the final step in the operation, will insure a minimum percentage of pedicle-abscesses and ligature-sinuses when silk is employed. In his experience, nonabsorbable sutures and ligatures have given almost no trouble. He has adopted catgut, in the hope that it will give no trouble at all, and thus eliminate even the small percentage of ill results formerly encountered. It is certain that with care and intelligence intraperitoneal abscesses and intraperitoneal sinuses due to silk as a ligature-material will seldom be met with; but with catgut as a suture-material, if suppuration does take place, it is a satisfaction to know that the healing of the abscess or sinus will not be delayed until the sutures are discharged. For the expert who has every facility at his command which the modern hospital affords there can be no question that absorbable sutures and ligatures offer distinct advantages over the nonabsorbable. The occasional operator is not likely to have a supply of sterile catgut nor the facilities to sterilize it. His relative inexperience, also, in applying ligatures puts him at a disadvantage in using catgut, as undoubtedly more skill and patience is required properly to secure catgut ligatures than silk ligatures; therefore, except for the expert, sterile silk will give better results than catgut.

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[1] Internat. Med. Mag., Oct., 1898.

[2] Med. News, Sept. 3, 1898.

[3] Ibid., Oct. 15, 1898.

After-treatment of Abdominal Section.—C. Martin[1] says that it is unnecessary to keep the patient rigidly on her back for 48 hours. The dressings should be simple, dry and absorbent, and aseptic. Wet dressings favor suppuration, and powders form unpleasant crusts. For closing the abdominal wall he uses interrupted sutures of silkworm-gut passed through the whole abdominal wall. He dislikes buried sutures. The sutures should not be removed till the tenth or twelfth day. He only drains in septic cases or where there is much oozing. A little clean blood does no harm. He advocates iodoform gauze as a drain in preference to glass or rubber tubes. It is better to drain through the posterior fornix than through the abdominal wall. A hypodermic injection of morphin is advisable immediately after the operation, as also in cases of great prostration and restlessness. He strongly recommends the purgative treatment of peritonitis, preferably calomel and salines. He advises the early administration of bland fluids after the operation; it is cruel and harmful to withhold fluids for 48 hours. An abdominal belt should be worn for at least 2 years after every abdominal section. F. W. Haultain[2] says that a nutrient enema is always given before the patient leaves the operating-table; and this is to be repeated every 4 to 8 hours, as required, should the patient be unable to take nourishment by the mouth. Thirst is best relieved by large normal saline enemas, and by swabbing the gums, mouth, and lips with a weak solution of glycerin and water. Pain is lessened by putting a large pillow under the patient's knees to diminish abdominal strain. For severe pain, $\frac{1}{6}$ to $\frac{1}{4}$ gr. of morphin should be given hypodermically; or a $\frac{1}{2}$-gr. morphin suppository. The patient should be turned on her side several times during the first 48 hours to give relief and to promote free peritoneal drainage by absorption. A large turpentine enema injected high up into the bowel is very beneficial in flatulent distention, the nozzle of the syringe to be kept in the rectum till the enema is returned. Massage along the colon, with the nozzle still *in situ*, might be tried; finally, free purgation with calomel and salines. A. Smith[1] relieves pain by codein tabloids or phenacetin, a tabloid of codein to be followed every second hour by another; phenacetin is given in 10-gr. doses. If flatulence is not relieved by a turpentine enema or carminatives, it may be quickly benefited by touching the abdominal walls lightly with a Paquelin cautery, especially when there is meteorism.

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[1] Lancet, Oct. 22, 1898.

[2] Brit. Med. Jour., Dec. 31, 1898.

Complications during and after Abdominal Section.—1. Hemorrhage and Shock.—According to J. P. Crawford,[2] the strategic point in the technic of these operations is the preliminary step of shutting off the blood-supply before beginning the separation of the growth. This step is accomplished by first going out near the margin of the pelvis and ligating the ovarian arteries 1 or 2 in. beyond the fimbriated extremity of the tube. A medium-sized curved needle, armed with a silk ligature, held with a strong holder, is passed through the broad ligament a good ½ in. within the free border, and brought around the same and securely tied. This marginal tie cuts off the ovarian arterial supply completely before it branches within the laminæ, and the ligature is so thoroughly anchored outside of the site of the operation that it is in no danger of being dragged off by further manipulation. The other part of this preliminary step is tying off the uterine feeders at the superior angle of the uterus. A curved needle, in like manner as before, is passed through the broad ligament about 1 in. below the margin, a little out from the fundus, just above the attachment of the round ligament, so as to preserve it, yet including the uteroovarian vessels; it is then made to sweep around the cornu, and the ligature is anchored in the free border, so as to prevent its slipping. This ligature ties off the Fallopian tube and vessels and ovarian ligament, as well as the uteroovarian anastomoses within the laminæ near the fundus. The whole broad-ligament region is now high and dry, and the separation and enucleation of these juicy growths can be rapidly accomplished without hemorrhage other than slight capillary oozing.

H. T. Hanks[3] uses regular and systematic intravenous injections of salt solution for loss of blood from any cause, as, for instance, severe traumatism, for the early stage of sepsis, for suppression of urine, and obstruction of the bowels from paralysis. One to 3 pints are usually sufficient; and the temperature should not be less than 115° F. The pulse-tension is a good indication when to stop. It may be repeated in from 4 to 12 hours, if occasion demands. If a chill follow, too cold fluid has been used. A hypodermic of morphin invariably relieves this. How this simple saline solution acts is not certain. That the cardiac and arterial ganglia are stimulated is certain, as evidenced by the flush appearance of the capillaries under the cuticle. The heart, besides, has something to contract upon, and the flushing of the smallest bloodvessels follows. The common every-day formula, which is easy to remember, is a teaspoonful of table-salt to a pint of water, the whole to be boiled for half an hour, filtered through several thicknesses of a sterilized towel, and kept in a closed bottle well corked with cotton, and this cotton properly protected with clean gauze. [The use of saline irrigation also will prevent shock, lessen thirst, and prevent in large measure the formation of adhesions.]

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[1] Dublin Jour. Med. Sci., Feb. 1, 1899.

[2] Med. Rec., Sept. 10, 1898.

[3] Am. Gyn. and Obst. Jour., Sept., 1898.

2. **Ileus.**—Haberlin[1] reports cases of intestinal obstruction after celiotomy treated successfully by massage after the usual means had failed. He recommends abdominal massage with change of the patient's position, soon after operation, in order to encourage peristalsis and to prevent intestinal adhesions. In case such adhesions occur, with evidences of obstruction, he believes that massage should always be tried in preference to reopening the wound. The fear of causing hemorrhage is unfounded, and there is no risk, in tearing recent adhesions, of injuring the gut. The only exception is in the case of adhesions that serve to wall off purulent foci. The pain attending the manipulations is not severe; even if suffering be increased, it does not serve as a contraindication. A loop of intestine adherent in Douglas's pouch or to a stump can be freed in this way; laxatives and enemas are to be employed at the same time, except in cases in which too active peristalsis is undesirable (as in incarcerated hernia). If a secondary celiotomy becomes necessary, the patient's chances of recovery are not jeopardized by the massage. W. J. Smyly[2] states that ileus is generally due to adhesion of the intestine to raw surfaces, either in the abdominal wound, the stump of the pedicle, the omentum, or the surfaces denuded in enucleating tumors or breaking down adhesions; constriction of the bowel by bands or from a coil of intestine slipping through a hole in the omentum; or kinking of the intestine, or volvulus. Cauterized surfaces and those deprived of epithelium by abrasion have been blamed for this accident; but this has been denied by others, and it is doubtful whether such injuries would cause adhesion unless deeper structures were destroyed. It has also been stated that septic infection is necessary, but experiments have shown that this is not the case, and that with the most rigid asepsis adhesions, as a rule, take place. As to prophylactic measures, Trendelenburg's position is one of the most important, since the bowels are out of the way and are not disturbed; but especial care must be taken, when the patient is restored to the horizontal, to arrange the intestines in their normal position and to see that they preserve their natural relation to the omentum. Coating raw surfaces with collodion has been recommended; and Martin of Berlin introduces a sponge soaked in sterilized oil; but most operators attach more importance to drawing down the omentum between the abdominal wound and the intestines, and, as far as possible, covering all raw surfaces with peritoneum.

3. **Ventral Hernia.**—Abel[3] traced the subsequent condition of 665 patients upon whom celiotomy had been performed at the Leipsic clinic in the course of 8 years; 97.5% of the patients were actually seen and examined. The following deductions were drawn: The integrity of the cicatrix depends primarily upon the method of suture and the manner in which the wound heals. Separate suturing of the fascia gives the best results. The early resumption of severe physical exercise after operation has a marked influence upon the development of hernias, as they then usually appear early, especially when the abdominal bandage is laid aside. Hernia is more common in fat women, because exact apposition of the fascial edges is more difficult than in thin subjects, since peritoneum and

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[1] Centralbl. f. Gynäk., No. 42, 1898.

[2] Lancet, May, 13, 1899.

[3] Arch. f. Gynäk., Band 56, Heft 3.

subperitoneal fat are apt to be interposed. The muscular tone and general condition of the patient have no influence on the solidity of the cicatrix; but improper suture and healing of the wound—in short, ventral hernia after abdominal section—are usually due to the operator rather than to the patient.

Conservative Pelvic Surgery.—A. P. Dudley[1] reports further on his work in this line, having now had 103 consecutive cases without a death. He advocates removal of only such parts of the ovary or tube as may be diseased, the open surface of the remaining healthy parts being brought together by suture, and the ovary, where amputation of the tube has been done, attached to the stump of the latter. In cases in which the tube alone is involved, adhesions are curetted from the ovary; and in a case cited the surface of the latter was thoroughly touched all over with pure carbolic acid, this being washed off with proof alcohol, and again with sterilized boiled water. This patient made a good recovery, and was afterward able to do her own work. When seen 5 months after operation it was found that menstruation had been reestablished, and the patient had gained in weight and general health. C. Martin[2] says that the physiologic value of the ovaries may be best realized by noting the results of complete extirpation of both glands: 1. The woman becomes absolutely sterile. 2. Menstruation ceases in about 95 % of the cases. 3. The uterus and, to a less extent, the vagina and vulva undergo a process of atrophy. 4. The nervous symptoms of the menopause appear abruptly and violently; namely, heats and flushes, perspirations, palpitations, giddiness, depression of spirits, and a generally unstable condition of the nervous system. 5. In a considerable majority of cases there is a diminution or total abolition of the sexual instincts. 6. The patient has a tendency to obesity. Now, if 1 ovary, or even only a portion of 1 ovary, be left behind, none of these symptoms appears. There is physiologically no difference between a woman with half an ovary and a woman with 2 ovaries; while there is a great difference between a woman with half an ovary and a woman with none. It is remarkable how small a fragment of ovarian tissue is necessary to preserve the full influence of the gland on the body. Martin therefore pleads for a more conservative surgery, unless the ovaries on both sides be diseased. Even in cases of double pyosalpinx, he says, it is now his custom to perform vaginal hysterectomy, and at the same time to remove the diseased tubes. In such cases he always endeavors to leave behind one or both ovaries, unless they are obviously diseased.

H. C. Coe[3] remarks that conservative operations on the adnexa are to be commended in properly selected cases. The surgeon should avoid, on the one hand, tampering with ovaries that are the seat of slight cystic degeneration or cirrhosis; and, on the other, trying to preserve supposed normal tissue in organs that show such extensive disease that it is doubtful whether the best interests of the patient (both immediate and remote) would not be served by complete removal. In many cases it is advisable simply to separate adhesions. As there is no way of preventing their re-formation, it is better to suture prolapsed tubes and ovaries at their normal level in the pelvis. *Anatomic Results.*—In a certain proportion of cases resected ovaries undergo complete atrophy; in others the stromal remains may form the starting-point of cysts, requiring a second operation for their removal. A tube that has been rendered patent or resected may again become occluded, or may form a hydrosalpinx or tuboovarian cyst. *Symptomatic Results.*—These are often entirely satisfactory as regards the relief from pain and dysmenorrhea, the preservation of the functions of ovulation, and the occurrence of conception. Per contra, constant pain and dysmenorrhea may persist; menstruation may be absent, scanty, or excessive; and pregnancy is so far the exception that it is to be regarded as an unusually fortunate sequence. In any case, we are not in a position to affirm how far conception following resection of the adnexa is directly due to this procedure or how far to the accompanying treatment—curetment, separation of adhesions, restoration of the general health, improved sexual relations, etc. Our main object is the avoidance of the premature climacteric. As regards technic, experience has shown that more successful conservative work can be done by the abdominal route, for reasons that are obvious—*i. e.*, thorough separation of adhesions, suture of raw surfaces, checking of hemorrhage, avoidance of drainage, etc. Catgut is preferable as a suture-material. [Care must be taken not to confound true and judicious conservatism with timidity and incomplete surgery. Again, it may be more conservative to remove the entire appendage than to leave a mutilated organ in the pelvic cavity.]

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[1] Am. Gyn. and Obst. Jour., Oct., 1898.

[2] Brit. Med. Jour., Sept. 17, 1898.

[3] Med. News, Sept. 24, 1898.

Vaginal Incision for Pelvic Disease.—Löhlein[1] has found this operation extremely satisfactory in a number of cases (42 during the last 2 years). The trauma and the possibility of infection of the peritoneum are very much reduced. The patient feels subjectively well from the first. The easy and thorough evacuation of all fluids in the peritoneal cavity, and the possibility of combining with it a number of other interventions on the perineum, vagina, etc., recommend this operation. The difficulties liable to be encountered are a narrow or rigid vagina, solid consistency of the morbid products to be evacuated, and impossibility to reduce their size by puncture and detaching parts. A ligature became unfastened in 3 cases, requiring the application of forceps for 36 hours. In a number of cases he was obliged to complete the operation with laparotomy; for which reason he advises that the abdomen should always be prepared beforehand as for laparotomy, as well as the vagina. In 1 case the ovary was removed through the posterior vaginal incision without interrupting pregnancy. He has been especially successful in peritoneal tuberculosis. The operation was performed once to differentiate carcinoma from tuberculosis. Le Dentu[2] states that this treatment is indicated in: 1. A case of suppurative hematocele in which there is a single sac. 2. A case of suppurative hematocele made up of numerous deposits included within septums, provided in such case there be a probability of a solid boundary of adhesions between the tumor and the peritoneal cavity. 3. A case of unilateral salpingitis or suppurating ovaritis, on condition that the sac be adherent to the mucous membrane of the vagina, or, at least, that it be not much raised above the culdesac. 4. A case of double suppurating salpingitis, provided the 2 tubes have run together so as to form a single sac, and do not project to any great extent into the pelvic cavity. In such cases as these, however, a long history of pelvic mischief and a chronic course of the disease would indicate some other treatment. Simple incision of either the anterior or the posterior vaginal culdesac is decidedly contraindicated in cases: 1. Of multilocular suppurating hematocele, when the superior limits of the disease are ill-defined and when there is reason to fear the rupture of adhesions and penetration into the peritoneal cavity during the operation. 2. When there are grounds for suspecting the existence of a salpingitis or ovaritis, either single or double, which is complicated with encysted peritonitis. 3. When the swelling, even though small, is situated far above either culdesac. 4. When the omentum, just above the disease, is thickened and indurated and forms a considerable portion of the swelling. In cases in which incision of either culdesac or of both is contraindicated, the surgeon should have recourse either to vaginal hysterectomy or to laparotomy.

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[1] St. Petersburg med. Woch., Oct. 29, 1898.

[2] Bull. et Mém. de la Soc. de Chir., No. 26, 1898.

F. Henrotin[1] says that this route should be selected when the same results can be obtained, because it avoids the abdominal scar, lessens the shock, and is much less frequently followed by hernia. The early vaginal incision is advocated in localized septic pelvic infection in its very incipiency. It is particularly applicable to the treatment of acute ovarian abscess. Following abortion and trauma, there occurs, after 2 or 3 days of fever, an exudate at the side of or just behind the uterus. This means ovarian abscess in 8 or 9 cases out of 10. An incision 1 in. long into the pelvic cavity, and an incision or tear with the finger-nail into the ovary, which is enlarged and semifluctuating, will give from 1 dram to 1 oz. of pus; a small wick of gauze placed in the opening, and 1 or 2 wicks in the vaginal opening into the vagina, will cure 19 out of 20 such cases. The later vaginal incision, though not always so certainly curative, is equally important. Old pus-tubes adherent low down in Douglas's culdesac, old ovarian abscesses, miscellaneous pus-collections, if in easy reach from the vagina, can be entirely cured by free incision and drainage. Thorough examination and opening of all pus-cavities are important. It is true that every case is not cured, and occasionally a more radical operation becomes necessary; but a large number of them remain permanently cured.

According to A. Donald,[2] the **anterior** incision is to be preferred in cases of chronic thickening and adhesion of the appendages, in broad-ligament cysts, in pelvic cellulitis, in fibroid tumors of the uterus, and in exploratory incision generally. **Posterior** incision is most applicable in pyosalpinx and ovarian abscess lying behind the uterus, in hematocele and ectopic pregnancy, and in most cases of vaginal ovariotomy. Drainage in vaginal section is always best procured by iodoform gauze. The indications for drainage are the same as in abdominal section. It should be the rule in all cases of incision into hematocele and pelvic abscess; in exploratory incision in cases of acute and subacute peritonitis; and in all cases in which there is oozing from raw surfaces after the removal of a diseased tube or ovary. The most careful disinfection of the vulva and vagina must be undertaken immediately before the operation; but after the peritoneum has been divided, care must be taken only to use boiled water or saline solution in the douche.

[1] Am. Gyn. and Obst. Jour., Dec., 1898.

[2] Brit. Med. Jour., Sept. 17, 1898.

W. R. Pryor[1] outlines the technic of vaginal hysterectomy, as it has been of great service to him during the past 5 years. After drawing down the cervix, the first incision is made in the culdesac, and of a crescentic shape. Anteriorly, a similar incision is made. In both cases he exercises care in leaving a sufficient amount of vaginal tissue for the purpose of forming union. The finger is passed posteriorly as high as the fundus, for the purpose of detecting adhesions and to aid in pulling the organ into a better field for operating. If any adhesions be present, they are gently detached by means of the fingers. The uterus is divided into halves, beginning at the anterior surface first, and subsequently the posterior section is made by means of a bistoury and grooved director. Bleeding is controlled by means of large clamp-forceps, after which the patient is placed in the Trendelenburg position, and the cavity packed with gauze, using as many as 10 or 12 strips, 4 in. wide. A retaining catheter is then inserted, and at the end of 48 hours a saline purge and enema are given. At the end of several days the packing and forceps are removed.

DISEASES OF THE OVARIES.

The Ovaries in Mollities Ossium.—Labusquière,[2] admitting on well-known evidence, the beneficial effects of removal of the ovaries in checking the advance of mollities, has examined numerous ovaries from patients subject to that disease. The theory advanced by Fehling to explain the phenomenon of mollities is, that the disorder consists of a trophoneurosis of the osseous system depending on a disease of the ovary; as the marrow plays an important part in maintaining the normal composition of the blood, the trophoneurosis causes a general disturbance in its composition. However, as in the case of the ovary in association with uterine myoma, the results of these researches are admittedly negative. They do not, Labusquière is bound to admit, explain or demonstrate the ovarian lesion that causes this trophic neurosis. There are marked changes in the vessels in the ovary; but these changes can be explained by the age of the patients, the influence of previous pregnancies, and vascular stasis. Malnutrition accounts for edema and subsequent sclerosis and atrophy of the follicles. The abundance of corpora fibrosa was striking, and might lead a hasty observer to false conclusions. These white bodies, however, usually consist of vessels involved in hyaline changes and diseased intravascular connective tissue; and they develop whenever any kind of disease sets up these changes in the vessels. The specific change in the ovary of mollities remains to be found.

Descensus Ovariorum.—A. Goldspohn[3] states that descensus, improperly called prolapse, of the ovary is responsible for many of the distressing symptoms of which women complain. The normal location of the ovary, as ascertained by Schultze, is against the lateral wall of the true pelvis, a little below the brim, and protected by a projecting folding of its mesentery. Its free border is directed in an inverted and posterior direction. It is suspended in the true pelvis nearly as high and nearly as far removed from the median line as possible. It is subject to the action of the abdominal pressure. There are 2 degrees of descensus. In the first degree, the ovary lies in the retroovarian shelf, and can be felt in the posterior fornix of the vagina by bimanual palpation. In the second, it passes over the uterosacral fold and sinks into Douglas's culdesac. The left ovary descends far the more frequently in both degrees, and in severe cases of double ovarian prolapse it is the most displaced. The causes of prolapse are: 1. Anything causing an abnormal or disproportionate increase in the weight of the organ, as inflammatory conditions. 2. A multiformation of corpora lutea and unruptured heavy Graafian follicles. A second group of cases includes the condition in which the ovarian ligaments become elongated, as in subinvolution; or when vicious traction is made upon them in minor gynecologic operations. 3. The chief causes of descensus are retroversion and retroflexion of the uterus. Harmful factors incident to descensus are: 1. Venous stasis. 2. Traumatisms from the uterus and the rectum. Hematomas, edema, connective-tissue hyperplasia, chronic oophoritis leading to multiple cystic degeneration in 1 part of the ovary and cirrhosis in other portions, and perioophoritis, are the pathologic changes in prolapsed ovaries. The so-called medical treatment of this condition is effective in cases in which descent is associated with retroversion and uterine subinvolution subsequent to parturition. A properly fitting pessary and a vaginoabdominal faradic current, with massage and tonic medicinal treatment, will do good in a few cases. Nonpuerperal cases, however, are not benefited. Wool tampons impregnated with glycerin, and renewed daily, will reduce the tenderness; and manual massage may then correct the displacement when a pessary must be worn for life. The best treatment for these cases, however, must be surgical. The displacement of the uterus must be corrected at the outset. The round ligaments may be shortened by vaginal section; but ventral celiotomy is the proper route in all cases complicated by adhesions and lingering septic action. Intraabdominal shortening of the round ligaments then acts admirably. The ovarian fimbriæ are caught by a thread and secured to the inner free margin of the main suspensory ligament of the ovary, near the iliopectineal line. Thus, the ovary and the fimbriated extremity of the tube are suspended in normal relation to each other and with a proper degree of mobility. Alexander's operation is not an ideal method for the treatment of ovarian prolapse. Only skin and fat should be cut, all other tissues being separated with a blunt instrument, and the internal inguinal ring stretched. In this way hernia will be prevented. An opening large enough to introduce the index-finger is thus obtained, and any degrees of fixation can be loosened and the tube and ovary brought up and out of the ring, when incision or conservative treatment of the appendages may be practised.

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[1] Jour. Am. Med. Assoc., May 25, 1899.

[2] Ann. de Gynéc. et d'Obstét., July, 1898.

[3] Brit. Med. Jour., July 16, 1898.

Hernia of the Ovary.—B. Browne[1] has collected a very complete bibliography of this condition, and adds 2 cases cured by abdominal section. He concludes that hernia of the ovary, although not very common, occurs much more frequently than has generally been supposed. Congenital hernia of the ovary is almost invariably associated with and caused by some arrest of development during intrauterine life; it is always inguinal, often double, but, when single, generally on the left side. It is caused by abnormal descent of the ovaries analogous to the normal descent of the testicles, constituting anomalies rather than diseases, and coinciding usually with other anomalies of the genitals, such as embryonic uterus, uterus unicornis, hermaphroditism, etc. The persistence of Nuck's canal favors the production of congenital hernia of the ovary ; and so do the size and shape of the ovary, which is at first a long, flat body, with its apex pointing toward the canal ; another favoring cause is the fact that at the birth of the child the ovaries are yet situated above the ileopectineal line, and during the first few months descend into the true pelvis. Since congenital hernia occurs so frequently as a result of arrest of development, and borders so closely on pseudohermaphroditism, it is important in all cases that the glands, when removed, should be examined microscopically (in Chambers's case, the herniated "ovaries" proved to be testicles). The sac in this form of hernia generally contains the ovary and Fallopian tube. It is irreducible except soon after birth, on account of the adhesions formed and the early closure of the internal ring. Accidental or acquired hernia of the ovary may occur at any of the ordinary terminal openings ; in which case it frequently follows a preexisting intestinal or omental hernia. It is almost always unilateral, and more frequent on the right side. It is most apt to occur soon after labor, when the abdominal walls are relaxed and the uterus and ovaries lie above the pelvic brim. On that account, women who suffer from any form of hernia should be carefully watched before, during, and after their confinements, so as to prevent and rectify any undue strain upon the weak point.

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[1] Tr. Am. Gyn. Soc., vol. xxiii.

Myxomatous Degeneration of the Ovary.—M. A. D. Jones[1] describes myxomatous degeneration of the ovary as the third hitherto undescribed disease of that organ. The ovaries consist of fine and well-organized muscle-fibers, fibrous connective tissue, nerves, and other vital structures, as the ova, bloodvessels, etc.; but all of these may be displaced and destroyed by this remarkable form of degeneration. Thus, in oophoritis, when the tissues are reduced to protoplasm or embryonal corpuscles, the ovary may degenerate into carcinoma, endothelioma, gyroma, or myxoma. This remarkable degeneration seems to have a withering and blighting effect upon every structure of the ovary. It seems very near akin to malignant disease, resembling myxosarcoma. The constitutional symptoms are severe. Jones has found but 5 or 6 marked instances of this disease. [Gynecologists owe much to Jones for her indefatigable labors in the microscopic pathology of the ovary. She has thrown much light upon hitherto unknown subjects in pelvic surgery.]

Ovarian Cystoma.—As the result of an analysis of the cases of ovarian cyst of various kinds operated on at the Johns Hopkins Hospital for 6 years, from 1892 to 1898, Brown[2] found that while simple retention-cysts and unilocular and multilocular cysts are much less common in the negress than in the white woman, they occur relatively much more frequently than is universally supposed ; while from both a clinical and a pathologic point of view, the dermoid ovarian cyst seems to be relatively the more common in the negro race. Among 3996 white patients in the gynecologic service, there were 88 with simple cysts, 53 with unilocular and multilocular cysts, 17 with dermoid cysts, 14 with papillary cysts, 4 with parovarian cysts, and 3 with intraligamentary cysts ; while among

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[1] Med. Rec., May 6, 1899.

[2] Bull. Johns Hopkins Hosp., Jan.–Mar., 1899.

589 colored patients there were 3 with simple cysts, 2 with unilocular and multilocular cysts, and 7 with dermoid cysts.

Bouilly[1] calls attention to the rare occurrence of torsion of the pedicle in true parovarian cysts, and to the fact that, while the clinical symptoms are the same as those which result from this accident in the case of ovarian neoplasms, the anatomic changes in the cyst itself are much less marked. Instead of the extreme congestion, intracystic hemorrhage, and necrotic changes observed in ovarian cystomas, twisted parovarian cysts may present a nearly normal appearance, the contents being unchanged. This difference is explained by the greater thickness of the pedicle in the case of the latter, so that the circulation is not interrupted, while the vascularity is also less. The writer reports 2 cases which presented typical symptoms of torsion; yet on opening the abdomen nonpedunculated parovarian cysts were found, the walls of which showed evidences of necrotic changes, 1 of them containing old blood-clots. He was unable to explain the condition unless on the theory of traumatism or necrobiosis of the cyst-wall and rupture of its vessels, due to pressure or torsion of the broad ligaments, both of which theories were unsatisfactory.

C. G. Cumston[2] says that there are 2 kinds of septic infection of ovarian cysts; namely, pathogenic infection and saprophytic infection. Pathogenic and saprophytic organisms often enter ovarian cysts through puncture, incision, and drainage. As puncture is discarded in a great number of instances by the majority of the profession, it is clear that the patient contains the agent of the septic process under consideration. The germs do not come from without, but from the interior of the organism, and the process might be called a true autoinfection, which takes place in 1 of 3 ways: 1. By means of the blood, in which case the infection is direct, produced by phlebitis, which extends up to the cyst; or it may be indirect, in which case the infective elements are carried in the general circulation into the tumor by means of its pedicle. 2. Infection may take place by way of the lymphatics, in which case the lymphatic channels act as the contaminating canals, and allow a direct introduction of the germs into the interior of the cyst up its hilum. 3. There may be infection through adhesions, which are plentifully supplied in new-formed vessels, and which are intimately connected with those in the walls of the cysts, and thus allow an easy transportation of the bacteria.

Fibroma of the Ovary.—Barremans,[3] after studying many cases of this form of tumor, concludes that it is often impossible to distinguish it from a pedunculated subserous uterine fibroid. Hegar's method of diagnosis is trustworthy: The finger is passed into the rectum and pressed against the tumor; at the same time the uterus is drawn downward by a volsella. If the tumor be ovarian, it will not move; if uterine, there will be great resistance to drawing down the cervix, which will clearly be continuous with the morbid growth. True fibroma of the ovary often sets up ascites, yet is rarely adherent to adjacent structures. It is never invested by a distinct capsule, like a uterine myoma. It undergoes different kinds of degeneration—even malignant—contrary to the opinion of many observers. Thus, Jacobs of Brussels operated on a woman, aged 51, removing a pair of ovaries, which together weighed 13 pounds. Neither growth showed the least trace of sarcomatous degeneration, and were, it appears, removed entire. Nevertheless, the patient died 2 years after the operation, from sarcoma of the peritoneum with ascites. In another case acute peritonitis occurred. At the operation the pedicle formed a cord 4 in. long, and was twisted no fewer than 5 turns. The last case was also of special interest. The patient was nearly 60, and had already undergone 5 operations; 3 for uterine myoma, and 1 for fibroma of the vagina. Before operation she suffered from great distention of the abdomen, due to ascites, as well as to the large size of the ovarian tumor. When the abdominal incision was made, 34 pints of clear ascitic fluid escaped. The ovarian tumor weighed over 14 pounds, and was adherent to the intestine. Unlike most ovarian fibromas, it did not form 1 mass, but consisted of an agglomeration of about 50 small tuberous bodies, an exaggeration of a condition oftener seen in uterine myoma. All the 4 cases recovered from the operation.

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[1] La Gynéc., Dec. 15, 1898.

[2] Charlotte Med. Jour., Oct., 1898.

[3] Ann. de l'Inst. de St. Anne, Bruxelles, vol. ii.

Malignant Tumors of the Ovary.—Geyer[1] reports the results of operations for malignant neoplasms of the ovary at the Würzburg Clinic during 7 years: 55 out of 239 cases of ovarian tumor, including papillomatous cysts, were malignant. Of these, 23 were inoperable; 16 of the 32 in which an operation was performed were cancerous, 8 patients succumbing to the operation. Recurrence occurred in 3 instances, 20% of the patients being cured; 81.8% of the cases of papillomatous cyst had no recurrence, and 2 patients died. The total percentage of cures in all cases was 46.8%. X. O. Werder[2] emphasizes the importance of this condition, which deserves more attention from abdominal surgeons and the profession at large than is usually accorded it. To substantiate this view, he quotes the statistics of the large continental clinics, showing its frequency. The following proportion of malignancy to other ovarian neoplasms removed by them is given by the operators named: Olshausen found 15%, Cohn's report of cases operated upon in Schröder's clinic shows 16.4%, Fritsch had 18%, and Leopold 23% of cases which were malignant histologically as well as clinically; while Kelly reports 8% of malignancy in 138 cases operated upon by him. The author finds 15.3% of malignancy (clinical evidence being confirmed by microscopic examination) in 130 patients, from whom one or more ovarian tumors were removed.

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[1] Centralbl. f. Gyn., No. 32, 1898.

[2] Jour. Am. Med. Assoc., Mar. 4, 1899.

ORTHOPEDIC SURGERY.

BY VIRGIL P. GIBNEY, M. D., AND J. HILTON WATERMAN, M. D.,

OF NEW YORK.

THE HEAD AND NECK.

Spasmodic Torticollis.—Bradford and Brackett[1] have reviewed an excellent article by Quervain,[2] who has collected 12 cases operated upon by Kocher. The operation consisted in resecting a portion of the muscle affected. The first step is the removal of 2 or 3 cm. of the sternocleidomastoid at its upper attachment. An incision in the skin is then made; and after the superficial fascia is divided, the trapezius splenius complexus major and minor are cut through. After stopping the hemorrhage the wound is sewed. In typical cases the sternocleidomastoid on one side is operated upon, and the neck-muscles on the other, where the inclination of the head is the chief deformity. Both operations were done on one side; and if the head was drawn backward, the neck-muscles on both sides were divided. Kocher saw no evil results, and in 7 out of 8 the attacks ceased completely. In 4, the cure had lasted for 1 year, and in 2, 12 years after the operation. In 3, improvement followed, and in 2, recovery did not take place, because, according to the operator, a sufficient portion of the divided muscle was not removed.

THE SHOULDER.

Partial Luxation of the Humerus following Anterior Poliomyelitis.—J. H. Waterman,[3] at the annual meeting of the American Orthopedic Association, reported the case of a boy, aged 12, in whom this condition was present. At the time of examination, there was partial paralysis, fairly well marked; the taste was intact, but hearing on the left side was diminished. There was atrophic paralysis of the deltoid teres minor, supraspinatus, and infraspinatus muscles. (Reaction of degeneration present.) There was marked atrophy of the triceps and flexor muscles of the arm. The faradic excitability was somewhat diminished, but there were no sensory disturbances. The shoulder-joint was quite loose; and the patient was able to produce a forward subluxation of the head of the humerus, and then reduce it spontaneously.

Cubitus Valgus and Cubitus Varus.—Raffel[4] states that the deformity coexists most frequently with other rachitic lesions of the vertebral column, the pelvis, and other parts. In general, the deviation of the elbow is bilateral. The deformity occurs most frequently in infancy, but it is also seen in adolescence. In cubitus valgus, the deformity consists of an abnormal curvature of the humeral diaphysis; while in cubitus varus, it may result from a curving of the diaphysis or an anomaly of the epiphysis.

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[1] Boston M. and S. Jour., July 7, 1898.

[2] Sem. méd., 1896.

[3] Tr. Am. Orthoped. Assoc., 1899.

[4] Rev. d'Orthop., No. 243, 1897.

THE HAND.

Congenital Deformities.—F. R. Sherwood[1] has collected cases illustrating these conditions in the hand. After giving the views of various writers as to the causation of these deformities, he reports a case of the suppression of 2 digits and the presence of a supernumerary thumb on each hand. There was retardation of development of the lower half of the forearms. The styloid processes of the ulnas were not well developed. The left forearm was 1½ in. shorter than the right, with incomplete extension at the elbows. Two thumbs on the left hand were clubbed almost to their tips, but they made quite a useful member. The nails were separate from each other. By reference to an x-ray photograph, it was seen that the phalanges were also separate, and that they articulated with an irregularly elongated mass of bone which represented the fusion of 2 metacarpal bones. This fused bone articulated with the fused trapezium and trapezoid. The metacarpal for the index-finger articulated partially with the fused trapezium and trapezoid, but principally with the fused os magnum and unciform. The ring and little fingers were suppressed on both hands, the right thumb standing almost at a right angle to the long axis of the hand. The articular surfaces were not in their normal relation to each other, which was due to a dislocation of 16 years' standing, the result of playing ball. In this case there was the occurrence of 2 separate and distinct processes of development, suppression, and supernumerary formation. "Suppression of 2 fingers and the development of 1 supernumerary thumb on each hand. Retardation of development in the lower half of the forearm. Fusion of the carpal bones. There were 4 carpal bones on the left, and 7 on the right side. Complete fusion of the metacarpal bones of the thumb, with ossification of the articular bones of the right thumbs at their proximal extremity." Dislocation of the right thumb, not congenital; "dislocation of the phalanges of the metacarpal bone of the right supernumerary thumb, congenital. Abnormal length of the metacarpal bone of the right thumb."

Tendon-transplantation.—Rocket[2] reports a number of cases in which the operation was done for paralyzed muscles of the hand. In a child of 9, in whom the abductors of the hand and thumb were paralyzed, the tendons of the flexor and extensor carpi ulnaris were cut close from their insertions. The tendons of the flexor brevis and abductor longus pollicis were laid bare, and the divided tendon of the extensor carpi ulnaris inserted into both, after opening the sheath. Some months later the patient could abduct the thumb and hand. In a 14-years old child, with a paralyzed arm and flail wrist-joint, tendon-transference was done, and 3 months later the little and forefingers could be extended and the thumb separated from the second metacarpal. Rocket also contributes another case equally as interesting, a patient, 15 years of age, with spastic hemiplegia of the right side, the hand being flexed. Incisions were made on the dorsal and volar sides of the forearm and wrist-joint, and the extensors of the fingers and extensores carpi were divided just above the joint. After dividing the superficial flexors of the finger and the flexores carpi, they were passed through the interosseus space and united to the central end of the divided flexors. On examination 5 months later the fingers could be flexed and extended, and the hand was straight.

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[1] Chicago Clinic, Sept. 1898.

[2] Lyon méd., No. 34, 1898.

Affection of the Extensor Muscles of the Thumb.—P. Hoffman[1] has described an affection in which the extensor ossis metacarpi pollicis, the extensor primi internodii pollicis, and the extensor secundi internodii pollicis appeared to be at fault. The pain was principally noticed on extreme adduction of the hand, on voluntary extension, on full passive flexion, and on resisted, voluntary extension; while passive extension gave relief. The writer reported 11 cases illustrating this condition. The treatment was fixation by a plaster-of-Paris bandage, applying it from the tip of the thumb to near the bend of the elbow, leaving the other fingers free.

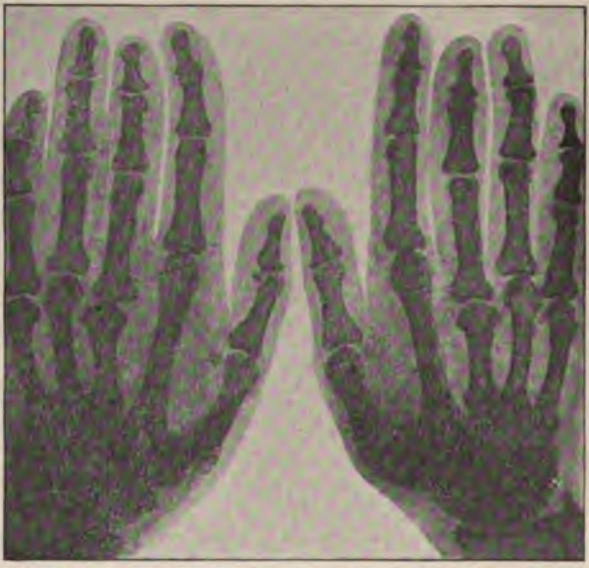

FIG. 72.—Symmetric deformity of both hands. The tube was 15 in. above the center of the plate (Phila. Med. Jour., Feb. 25, 1899).

Congenital Deformity of Hand and Feet.—H. G. Norton[2] reports the case of a child with the middle finger and metacarpal bone of the right hand entirely absent, and some webbing of the third and fourth fingers. The feet were cleft. The little toe of each foot was largely developed, and there was an absence of the other toes, except the big toe, which was crooked and elevated above the sole of the foot. An interesting fact is that the child's father has similar feet.

Symmetric Deformity of Both Hands, Probably Congenital.—W. S. Wadsworth[3] reports the following case, which is illustrated by an excellent radiograph. The metacarpal bones of the middle fingers are from 1 to 2 cm. shorter than normal. The metacarpal bones of the ring fingers of both hands are from ½ to 1 cm. shorter. The metacarpal bones of the little fingers are slightly reduced in length. The ends of the middle metacarpals are markedly deformed. The first phalanges of the middle fingers are slightly longer than normal, though that lengthening is within the normal variability.

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[1] Tr. Am. Orthoped. Assoc., 1898.
[2] Phila. Med. Jour., Oct. 8, 1898.
[3] Ibid., Feb. 25, 1899.

THE SPINE AND THE THORAX.

Forcible Correction of Angular Deformity of the Spine.—J. E. Goldthwait[1] has devised a simple apparatus, consisting of an oblong frame of gas-piping, carrying extension-screws at both extremities, and a movable arched double bridge. The weight of the body is all that is necessary to straighten and overextend the spine in a large number of cases; and in many this can be accomplished without the use of an anesthetic. In 5 cases paralysis disappeared almost at once; and in all of his cases the symptoms were greatly relieved. The youngest patient upon whom the apparatus was used was 4 years of age; while the oldest was a man of 35. The author's conclusions are: "It has been clearly shown that similar operations have been performed at different periods in previous centuries. The operation, as simplified by the writer, has been performed in a large number of cases, upon which the paper is based. An apparatus has been described by which it is possible to accomplish correction without the necessity of a large number of assistants, and which makes it possible to apply the plaster-of-Paris jacket with marked hyperextension of the spine. No unpleasant results have been experienced, and in 5 cases in which paralysis was present the recovery was almost immediate. In the acute cases, the operation seems to promise a moderate diminution of the existing deformity; and in the method of after-treatment, as observed, it is probable that the course of the disease will be shortened, and that the usual increase of the deformity will be avoided. In cases in which there is marked deformity, the operation is justifiable at times, in order to secure better respiratory and digestive action, as well as to improve the position of the spine." He[2] read a paper on this subject at a meeting of the American Orthopedic Association. After giving a history of this operation, he reported some cases upon which he has operated, and showed some excellent photographs illustrating the benefit to be derived from this procedure in cases in which it is impossible to follow out such measures. He regards the operation as being especially indicated when there is paralysis, and when the deformity is marked and shows a tendency to increase. [The Calot treatment, as it is called, seems to have had its day. Like all heroic measures, it has been followed by modifications which have robbed it of its severity; and it can be positively stated that the profession is better able to cope with deformities of this kind; is better informed on the pathology of the disease, and will undoubtedly do much better work in the way of preventing deformities. After a personal test of the apparatus, our conclusions correspond most identically with those of Goldthwait.]

Results of Forcible Straightening of the Spine.—Bilhaut[3] agrees that in all cases of Pott's disease some changes are produced in the height. In children the curve of the spine is arrested; but when the curve is reduced the child regains its powers of growth, and at the same time the form of the thorax is corrected.

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[1] Practitioner, Feb., 1899.

[2] Boston M. and S. Jour., June 20, 1898.

[3] Ann. de Chir. et d'Orthop., Jan., 1898.

Forcible Correction in Pott's Disease.—W. R. Townsend,[1] at a meeting of the Section in Orthopedic Surgery, reported a case of Pott's disease in the upper dorsal region in which this procedure, had it been resorted to, might have proved fatal. Autopsy showed a retrophalangeal abscess in the median line, directly over the vertebral column and extending to the right. Numerous enlarged glands had pressed on the recurrent laryngeal nerve and caused paralysis of the vocal cords. The second dorsal vertebra was so diseased that the finger was pushed through it to the spinous processes. Forcible reduction might have ruptured the abscess.

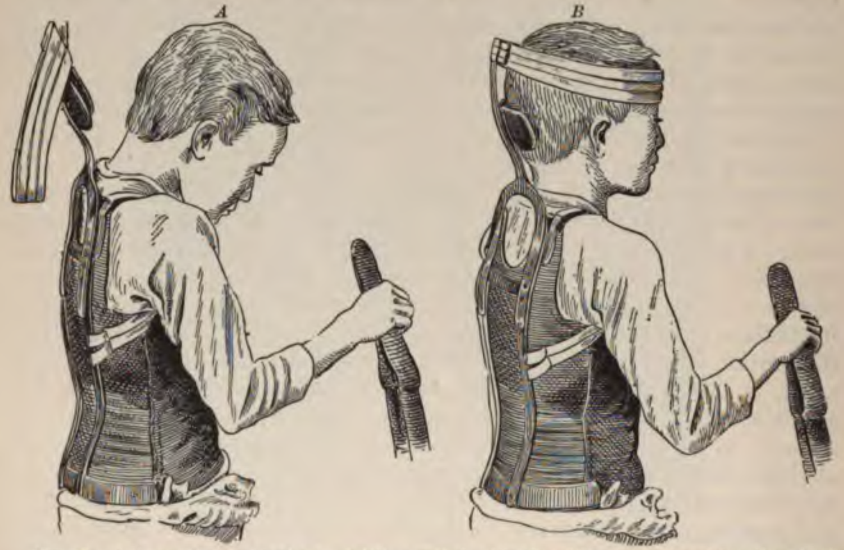

FIG. 73.—*A*, brace for cervical spondylitis applied with the chin nearly touching the chest, which is the typical position in advanced cervical spondylitis. *B*, brace applied (Chicago Med. Recorder, July, 1898).

Lateral Curvature Treated by Forcible Reduction.—V. P. Gibney,[2] at a meeting of the New York Academy of Medicine, presented a girl, 14 years of age, who had been treated by this method. Operation was done 3 times, and now she has gained $1\frac{3}{4}$ in. in height and the curvature has been greatly lessened. The treatment was continued for some months, with an improvement that seemed to remain. The back was improved, the lateral deviation lessened, and even the rotation was less pronounced.

Iliac Abscess of Pott's Complicating Femoral Hernia.—R. T. Taylor and N. E. Iglehart[3] report a case in which this condition existed. A patient, aged 31, with Pott's disease involving the spine from the ninth dorsal to the second lumbar, and also with acute ostitis of the right knee, which had been treated at times by plaster-of-Paris, developed an abscess about 2 years after the onset of the disease. The swelling was just below and internal to the right anterior superior spine of the ilium. It was partly reducible, but refilled. It fluctuated, and was nowhere tympanitic on percussion. The swelling was aspirated twice at different times, and about 380 cc. of creamy pus withdrawn. Two days after the last aspiration an enlargement was noticed in the right groin, just above the region of the femoral ring. It was not reducible, and no fluctuation could be made out. It was thought to be a pocket of the iliac abscess. Five days later a sausage-shaped mass, 4 by 7 cm., was seen in the right groin. It was hard, and had a small point of fluctuation in its sac, near, but above, the femoral canal. Operation was decided on, as the symptoms pointed to strangulated hernia. The hernial sac was found to communicate with the iliac abscess, and the former was filled with serum. This sac was removed and the gut returned to the abdominal cavity. The iliac abscess was then curetted and the whole dressed in the usual manner. The patient finally recovered.

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[1] Tr. N. Y. Acad. Med., 1898.

[2] Arch. of Pediatrics, Sept., 1898.

[3] Tr. Am. Orthoped. Assoc., 1898.

Congenital Absence of Clavicles.—C. A. Hamann[1] reports a case in which the sternal extremities only were present. These consisted of osteocartilaginous bodies 1½ in. in length. The discovery of this condition was made only by accident, as it did not interfere with the patient's work.

Brace for Cervical Spondylitis.—W. Blanchard[2] presents a brace which is built with the following objects in view: To immobilize as nearly as possible the head and neck; to transfer as far as may be possible the weight of the head directly to the pelvic portion of the body; to carry the head backward, so as to impose upon the spinous processes all of the weight that may not be taken by the brace; and to protect the vertebras from jar and concussion.

A Cause of Lateral Curvature.—G. W. Fitz,[3] in an interesting paper on this subject, concludes that habitual lateral bed-postures, by favoring the growth of the spine on one side and retarding it on the other, tend to fix such a curve by establishing physical changes in the bones and ligaments, and that thus bed-posture becomes an important factor not only in the etiology of curvature but in its treatment.

THE HIP.

Tuberculosis of the Bones and Joints.—E. H. Nichols[4] made an address before the American Orthopedic Association on this subject. He said that "disease of the bones and joints is considered to be tuberculous: 1. Upon the more or less constant presence of the tubercle in these diseased tissues. 2. Upon the occurrence of the essential tuberculous structures in the diseased bones and joints; that is, miliary tubercle. 3. When, by inoculation of the tissue into susceptible animals, general tuberculous disease is produced in those animals. 4. When, under certain circumstances, by inoculating animals with material from these bones or joints, or by inoculating them with pure cultures of tubercle-bacilli and then injuring their joints, there can be produced a tuberculous process exactly resembling that seen in tuberculous joint-disease in the human subject. 5. When general tuberculous disease is secondary to the primary focus in the diseased joint. Injuries of moderate severity favor the occurrence of tuberculous disease in bones and joints. The process most invariably begins in the epiphysis of the long bones; but in the short bones the process often begins in the shaft, and spreads rapidly to the adjacent bone." After an exhaustive examination of 120 cases of joint-disease, he was compelled to say that he had never met with a single instance of primary synovitis, although most writers think that primary synovial tuberculosis is fairly common.

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[1] Cleveland Med. Jour., June, 1898.

[2] Chicago Med. Recorder, July, 1898.

[3] Tr. Am. Orthoped. Assoc., 1898.

[4] Boston M. and S. Jour., Aug. 25, 1898.

A Distinct Variety of Hip-joint Disease in Children and Young Persons.—Edmund Owen,[1] before the Harveian Society, called attention to an acute suppurative disease which must be carefully separated from the more common tuberculous disease of this joint. The symptoms are characterized by sudden onset and an acute course of intense severity. Sometimes preceding the attack there was a history of injury. Death from septicemia was liable to occur if it was not speedily recognized and adequately treated. Owen thought the disease was caused by the invasion of the microorganism of osteomyelitis, of the very acute type, at the upper extremity of the diaphysis of the femur. Reference was made to a paper on this disease by the late J. S. Bristone. [This affection is by no means new. It has been described time and again by surgeons under the titles "Acute Epiphysitis," "Acute Arthritis of Infancy," and "Acute Infectious Osteomyelitis."]

Tuberculous Joint-disease in Colorado.—George B. Packard[2] read a paper before the American Orthopedic Association on this subject. The author concludes that in this climate it is unusual to see a case of hip-disease, under proper treatment, go on to disintegration of the joint and prolonged suppuration, as is witnessed in the Eastern climate. He emphasizes the importance of fresh air and sunshine in the treatment of tuberculous joint-disease, as well as that the local treatment should be supplemented by judicious climatic environment. His experience shows that the disease runs a milder and shorter course than in the East.

Unusual Fractures of the Neck of the Femur.—H. L. Taylor,[3] at a meeting of the Orthopedic Section of the New York Academy of Medicine, presented a boy, 15 years of age, who, 2 years previously, felt sudden pain in the right leg, followed by lameness for 2 weeks. No shortening was noticed. After that he had lameness and disability, with but little pain, until January, when he slipped and fell on a floor with the knee bent under him. The neck of the femur was found to be broken. Six months later, when examined by Taylor, there were extensive eversion and very little motion. In April, under an anesthetic, more mobility and lessened eversion were gained by manipulation, which was repeated 5 months later, with further improvement. At present there is considerable free rotation, 30° of lateral motion and 30° of flexion; trochanter 1 in. above the line; walking is very free, but with a slight limp. He also presented a boy, 18 years of age, who, in Dec., 1897, fell on the left knee. There was immediate stinging pain in the left hip, but he could walk with some assistance. Three weeks after the fall there was a marked limp, with very little motion in the hip. The trochanter was 1 in. above the line, and there were tenderness, induration, and muscular spasm about the joint. The limb was 1 in. short and rotated outward. At present there are shortening of 1½ in., limited motion, and adduction; no pain, considerable limp. These cases are of special interest on account of the youth of the patients and the slight violence of the accident. The general opinion in the first case was that the bending of the neck of the femur had preceded the accident and made easy the fracture of the bone.

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[1] Brit. Med. Jour., Nov. 26, 1898.
[2] Tr. Am. Orthoped. Assoc., 1898.
[3] Arch. of Pediatrics, Dec., 1898.

Methods of Detecting and Measuring Abduction and Adduction of the Thigh.—Hoffman[1] describes a method by which the amount of abduction of the thigh can be measured. He records the distance from 1 anterior spine to the other. Midway between these points a dot is made with an anilin pencil. A mark is then made over the symphysis pubis. A string is then applied from the upper to the lower mark, and down the thigh and leg to below the soles of the feet. If there is no adduction, the string falls midway between the 2 inner condyles and the internal malleoli. If either limb is abducted, both condyles and the malleoli will be outside the string; if adducted, they will be inside the string.

Dislocation of the Hip-joint in Typhoid Fever.—H. S. Collier[2] calls attention to the salient features of dislocations occurring in connection with acute fevers. He states that in typhoid dislocation has usually occurred in the early days of convalescence, when the patient has been profoundly feeble. In other cases some slight strain has been the contributing cause. In no case was any joint-phenomenon noticed antecedent to the occurrence of dislocation. Reduction has usually been easy; but recurrence has happened in several cases.

Observations on Coxa Vara.—R. Whitman[3] has written an excellent paper on this subject, with particular reference to its etiology and treatment. The author, among others, presents a case of bilateral coxa vara in an adolescent, illustrating the course of the affection, its symptoms, and its treatment by operation, observed from its inception to its final cure.

G. A. Sutherland[4] presented a girl, aged 7 months, in whom this condition was **bilateral.** When the child lay on her back, the lower limbs were flexed at the knees and the feet rested on their outer edges, with the soles parallel. It was further found that flexion at the hip-joints was so free that the toes could easily be raised to the mouth and ears. The child usually slept with the feet resting on her chest.

W. W. Cheyne,[5] at a clinical meeting of the Medical Society of London, reported 2 cases **of coxa vara showing the result of division of the femur below the trochanters.** An incision was made on the outer side of the thigh, at the upper part, and the femur having been exposed and cleared was divided transversely across with a saw, a little below the trochanters; the foot and leg were then forcibly inverted until the normal degree of complete inversion was obtained, and, being held in this position while the trochanters were pushed forward, a perforated oblong aluminum plate was placed over the femur, opposite the line of division, and nailed on to the 2 fragments by means of tin tacks, which had been nickelled. The object of this was to prevent rotation of the leg outward during the union. The limb was put up in the inverted position, and the wound healed by first intention. The leg was afterward put in a fixed apparatus for several weeks. Previous to the operation, the boy could neither stand nor walk; but when shown to the Society he was able to walk quite well, and the left leg, which had not been operated on, was also very useful. The results were the same in both cases, and are as follows: 1. The legs are in perfect position; inversion and eversion of the legs and feet are normal, and the legs are as useful as if there had never been anything the matter with them. 2. The left leg, for which nothing has been done, in each case has improved markedly in usefulness, and the eversion has somewhat diminished, although not to any great extent; in them, however, the deformity has continued to progress, more especially in the direction and elevation of the trochanters, which are now about ½ in. above Nélaton's line, with the result that the left leg in each case is shorter than the one operated on. The author furthermore states that (3) "The deformity on the side operated on has come to a standstill in both cases."

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[1] Boston M. and S. Jour., June 30, 1898.

[2] Brit. Med. Jour., Oct. 15, 1898.

[3] N. Y. Med. Jour., Jan. 21, 1899.

[4] Practitioner, Feb. 1, 1899.

[5] Brit. Med. Jour., Feb. 18, 1899.

THE KNEE.

Erasion of the Knee in Children, with Conservation of the Epiphyseal Cartilages.—H. M. Sherman,[1] at the annual meeting of the American Orthopedic Association, reported 3 cases illustrating this operation, which brought out an interesting discussion of the subject. R. W. Lovett said that in his opinion the results gained in this line of work were extraordinary. His experience has been fairly satisfactory as far as the conservative treatment went. If, on opening an abscess, the joint was found seriously disorganized, the diseased part should be taken out. He was rather opposed to operative treatment in knee-disease. W. R. Townsend recalled 1 or 2 cases occurring in adults. In 1 of these the patient was doing remarkably well, but suddenly and without any warning an abscess developed. Although excision was promptly performed, the patient died of hemorrhage from the divided ends of the bone. He thought excision would have to be performed more frequently in adults than in children; and the indications were for an earlier excision. The author stated that the whole question of the treatment of joint-lesions depended very largely upon our ability to estimate accurately the vitality of the patient. Those who lacked the necessary vitality should be subjected to early and radical operations; others might be let alone; and there is great necessity for differentiating between these cases.

Congenital Malformations of the Knee. — Bradford and Brackett,[2] in reviewing an article by Potel (Lille), who has investigated 300 cases of congenital deformities of the knee-joint, find the author's classification as follows: As defects of the femur, bifurcation of the lower epiphysis of the femur, with alteration of the condyles; defects of the tibia, splitting of the upper epiphysis of the tibia; defects of the fibula; and defects of the tibia and fibula. These are chiefly cases of imperfect development. Distortions due to abnormalities of the muscles also occur; and among these are absence or atrophy of the patella, with a backward curving at the knee—a lack of development of the quadriceps. A split of the patella, with a separate insertion of the vastus externus muscle, may take place, with dislocation of the patella; genu valgum and genu varum, and also a dislocation at the knee-joint.

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[1] Tr. Am. Orthoped. Assoc., 1898.

[2] Boston M. and S. Jour., June 30, 1899.

Suture of Crucial Ligaments for Injury to the Knee-joint.—Battle,[1] at St. Thomas's Hospital, performed this operation on a patient with rupture of the anterior crucial ligaments from traumatism. It was found that the ligament was torn from its attachment, but sufficient remained to suture it. The internal ligament was then sutured, a suture inserted into the capsule on the inner side of the joint, and 3 sutures to unite the ligamentum patellæ.

Three Floating Cartilages in the Knee-joint, Presenting Peculiar Symptoms.—Le Roy Hubbard[2] has reported the case of a patient in whom this occurred. When 16 years of age, the right knee gave way with a peculiar sickening feeling and sensation, but returned to its natural position without assistance. During the next 12 years this same accident occurred at varying intervals, frequently throwing her down, and followed by swelling, which lasted for 2 or 3 days. Six years ago she was seized with a severe pain in this knee, which caused her to faint. Similar attacks followed; and later she was unable to extend fully the leg. Some months later the joint was opened on the inner side, and 3 floating cartilages were found. These were removed and the wound was closed. Convalescence was slow and the joint is now quite stiff.

THE FEET.

Anterior Metatarsalgia and Similar Affections of the Metatarsal Region.—R. Whitman[3] has presented his observations on this subject and the allied disorder of the anterior part of the foot. In practically all of the earlier cases the pain has been referred to the fourth metatarsophalangeal articulation, and in those of his own cases there had been a marked depression of the longitudinal arch. At all times the affected articulation is sensitive to deep pressure. He expressed the opinion that weakness of a part or of all of the anterior arch was a predisposing cause. The shoe is not only the exciting cause of the immediate symptoms, but also an important predisposing element, owing to its action in weakening the arch. If the shoe does not support the arch, or if the sole of the shoe beneath the arch is curved downward, one or more of the bones may be compressed and result in the production of this cramp. This explains why sometimes a tight shoe is more comfortable to such persons than a wide one. The affection is more common in women than in men, because of high heels and narrow shoes. In these cases every effort should be made to give proper support to the anterior arch, and the patient should wear a shoe having a low heel and a wide and thick sole. Morton's painful affection of the foot and anterior metatarsalgia, although not identical, are closely allied, and are the result of an abnormal relation due to occasional or habitual depression of the transverse arch. It may occasionally exist without obvious deformity, probably as a result of lateral pressure from overcrowding of the fifth metatarsal bone, which is in turn brought about by abnormal laxity of the ligaments. In obstinate cases, the treatment he recommends is a spring similar to that which he employs in flat-foot, the difference being an arching of the distal end of the spring, so that the transverse arch of the foot may be restored and the pressure in this way be avoided. The same result can be brought about by attention to the last on which the shoe is built. That portion of the last just back of the metatarsal joints can be shaved, so as to make a depression in the last. A shoe, therefore, built over this last, will give a good transverse arch where it is needed. To preserve the arch, springs may be inserted in the shank of the shoe, so that the leather portion will not break down.

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[1] St. Louis M. and S. Jour., Apr. 1, 1899.

[2] Tr. Am. Orthoped. Assoc., 1898.

[3] Boston M. and S. Jour., Aug. 18, 1898.

Modification in the Operative Method for Inveterate and Relapsed Cases of Talipes Equinovarus.—August F. Jonas[1] states that the various skin-flap operations, both pedunculated and free, have always possessed the drawback of the liability to necrosis from insufficient blood-supply, and yet integument seems to be the only tissue that can fill the large gap in the Phelps procedure. It seems that if an attached flap with a broad pedicle can be produced that under all circumstances will contain a sufficient blood-supply to insure its life, at the same time covering the greater part of the wound, more particularly the deeper part of the wound produced by the severed fascia, tendons, muscles, and ligaments, we shall have made an advance in the direction of preventing recurrence caused by contraction of the soft parts. The author has proposed making a V-shaped incision similar to that advocated by other writers for cicatricial contractions after burns on the flexor side of the extremities. An incision is made, beginning slightly below the margin of the plantar fascia, on the inner side of the foot, at a point on a line directly below and anterior to the internal malleolus, extending forward and upward to a point on the first metatarsal bone and nearly to the metatarsophalangeal articulation. A second incision is made, beginning at a point over the astragaloscaphoid articulation, extending forward and

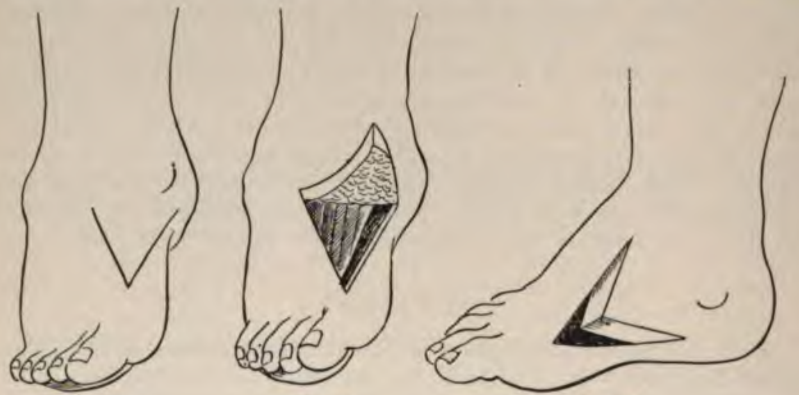

FIG. 74. FIG. 75. FIG. 76.

FIGS. 74-76.—Modification in operative method for talipes equinovarus (Ann. of Surg., April, 1899).

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[1] Ann. of Surg., Apr., 1899.

slightly downward, joining the first incision near the metatarsophalangeal joint, forming a V, as shown in Fig. 74. The incisions are made deep, so as to include the subcutaneous tissue and fat; having exposed all the shortened soft structures, as shown in Fig. 75, then first sever diagonally the inner fasciculus of the plantar fascia. The diagonal division of the plantar fascia is done so that after correction there shall not be left a defect between the divided ends, but that the points of the incised fascia still come in contact, thereby lessening the tendency to contraction of this structure when repair is complete. The remaining structures are now divided successively until the astragloscaphoid capsule is reached. Instead of dividing this, another incision is made on the outer side of the foot, over the head of the astragalus, pushing aside the tendons and soft structures and exposing the neck of that bone, and then cutting through the neck with a chisel. The forward part of the foot is then pushed forward without separating the astragaloscaphoid articulation. It frequently becomes necessary in old, inveterate cases to remove the head of the astragalus. The foot is now overcorrected and the varus turned into a valgus. The equinus position can now be relieved by subcutaneous division of the tendo Achillis. The triangular flap is then turned back; it covers the wound except at its anterior point, as shown in Fig. 76. No sutures are employed. A perforated silk protective covers this wound. The outer wound over the head of the astragalus is closed with catgut. Plaster-of-Paris dressing, beginning at the toes and extending above the knee, is used. This method has been employed only in old, inveterate, and relapsing cases. The writer believes that the advantages of the triangular flap are many; but insists that the case be kept under observation for several years, for unless suitable retentive apparatus is employed a partial recurrence will take place in a certain number of cases.

Gouty Deposits in the Sole of the Foot.—Kittel[1] describes in the aponeurosis of the feet and in the bones collections of small particles resembling concretions of sand. Under certain conditions a progressive degeneration takes place, which is followed by necrosis of the tissues and a deposition of urates. The clinical symptoms are not those of true gout, but are rather atypical.

Tendon-grafting.—Frederick Eve,[2] after operating upon several cases of infantile paralysis by this method, concludes that: 1. The graft acts mechanically as a supporting band applied, where it is most required, to the ankle and foot. 2. If one or more of the contracted antagonists be selected for reinforcing the paralyzed muscles, the antagonists are weakened, and the deformity is thus treated as by tenotomy. 3. The involuntary contraction, on placing the foot to the ground, of the functionating muscles used as grafts and acting in the required direction give the foot the necessary firmness, even though the patient cannot voluntarily accomplish the movements normally performed by the paralyzed muscles. [A number of papers have been published during the year; all are valuable contributions to this subject. A perfect technic has not as yet been arrived at, and it is too soon for final results. Whether the tendons thus transplanted will stretch or not under the weight of the foot remains to be seen. From clinical experience of the operators, this has taken place in a few instances.]

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[1] Berlin. klin. Woch., 1897.

[2] Brit. Med. Jour., Oct. 15, 1898.

Thickness of the Pad Used in Pes Planus.—D. T. Marshall[1] has devised an apparatus consisting of a block of wood, having in its center a recess or groove, in which slides a block. This block may be raised or lowered by means of a thumb-screw. The foot is placed on the block, the patient resting his entire weight upon it. The movable block is then raised until the arch of the foot is comfortably supported. A corresponding scale allows the block to be read, and from this reading the pad may be made.

Tabetic Talipes Valgus.—A. B. Judson,[2] at a meeting of the Orthopedic Section of the New York Academy of Medicine, presented a photograph illustrating Charcot's joint-affection of the tarsus. The knee had been excised for this condition, but stability had not been restored. Pathologically, there were pulpy and fluid degeneration of the bony and other tissues, and disintegration of the structures of the joints.

Brace for Flat-foot in Infantile Paralysis.—G. G. Davis[3] presents a brace (Fig. 77) which can be used for one or both of these conditions. It consists essentially of a steel sole-plate fastened to a band immediately below the knee, and is intended to be worn inside the shoe. In cases of infantile paralysis with toe-drop, the upright bar is prolonged slightly below the joint. In front of this projection is a screw; this attachment allows the foot to be flexed to any desired extent, but prevents extension beyond a right angle.

MISCELLANEOUS.

Adenoids as an Etiologic Factor in Orthopedic Deformities.—F. S. Coolidge,[4] in a paper on this subject, suggests that orthopedic deformities occurring in tubercular joint-disease may have their source of infection either directly or indirectly from adenoid vegetation, and more frequently the latter. It is often found that adenoids are of a tubercular character. Deformities may occur as a direct obstruction to breathing, or may result directly from the reflex irritation of neighboring nerves by the adenoid growths. Adenoids may cause such a lowering of the general nervous vitality that they may be considered almost the direct cause of some of the atypical orthopedic deformities where the etiology is unknown, but is indefinitely referred to the nervous system.

Polyarthritis Deformans in Children.—Tschernow,[5] in describing this affection, states that characteristic symptoms develop; namely, hypertrophy of the epiphyses and atrophy of the diaphysis, destruction of the cartilages, alteration of the synovial membrane, and early muscular contraction. The onset in 49 cases was either acute or subacute. In analyzing 400 the affection was found to exist, according to the age, from 1 year and 4 months to 25 years. Delcourt[6] contributes an excellent article on the subject. In the condition described, a non-tubercular osteomyelitis is to be found at the end of the bone, with fibrous rheumatoid changes in the periarticular tissue. The results of treatment are not brilliant. [Indeed, both papers seem to be a contribution to the pathology and pathogeny rather than to therapeutics. Cases have been described in which there were not even rheumatoid changes; and such are confined to the spinal column rather than to the joints of the extremities.]

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[1] Med. News, July 16, 1898.
[2] N. Y. Med. Jour., Nov. 26, 1898.
[3] Phila. Med. Jour., Aug. 27, 1898.
[4] Tr. Am. Orthoped. Assoc., 1898.
[5] Centralbl. f. Chir., Aug. 20, 1898.
[6] Rev. mens. des Mal. de l'Enfance July, 1898.

Osteomyelitis in Infancy.—Swoboda[1] has made a complete study of this disease, and considers the following facts as distinctive in differentiating it from other conditions: 1. The multiplicity of the foci in the bone. 2. The frequency of the separation of the epiphysis. 3. The frequent involvement of the joint. 4. The acute cause of the disease. [The treatment suggested by the writer has been followed by most surgeons for many years.]

A Case of Distortion of the Aorta in Pott's Disease. —Thomas Dwight[2] presents a contribution to the deformity found in severe Pott's disease, which has already been described by Bouchacourt. The deformity of the aorta might be compared to the letter S lying on the side, with the ends bent strongly backward, so as to surround the prominence of the spine.

Points in Incipient Orthopedic Cases. —M. Hartwig,[3] in an address on this subject, has called attention to many points in connection with the diagnosis of orthopedic conditions, and in general impresses on the surgeon the importance of closely observing the early symptoms.

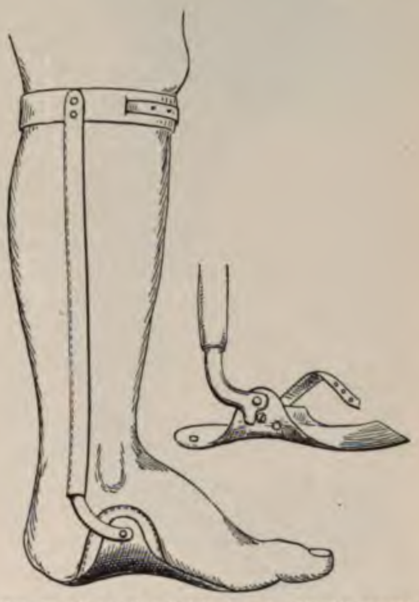

FIG. 77.—Brace for flat-foot and infantile paralysis (Phila. Med. Jour., Aug. 27, 1898).

Horn-skin for Orthopedic Appliances.—O. Vulpius[4] has been using a new material—horn-skin (Horn-haut)—for making artificial limbs and corsets. It is the raw hide of the animal dried, the hair removed, and impregnated with a varnish. After trying it in many cases, the writer recommends it in the highest terms.

Congenital Absence of Part of the Tibia.—Curzio Emilio[5] has shown a girl, aged 15 years, presenting this peculiar condition. Except for the deformed lower limbs, the patient was well developed. The tibia was of tapering form, and ended in a sharp point opposite the middle of the leg, as shown in Fig. 78.

Local Muscular Weakness as a Cause of Joint-irritation. —R. W. Lovett[6] calls attention to the importance of limiting, so far as lies in the surgeon's power, the muscular weakness that occurs necessarily in connection with joint-inflammations, as this may become a source of joint-irritability. It is essential that we should investigate the muscular condition in a joint which is a source of trouble months after an accident, although there are no signs of chronic joint-disease. The author reports 3 cases which admirably illustrate this important point; and in 1 case the condition seemed to be a muscular weakness, the outcome of an accident, outlasting the inflammation by many months, and yielding only to measures directed to the development of the muscles.

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[1] Wien. klin. Woch., vol. x., 1897.

[2] Am. Jour. Med. Sci., Jan., 1897.

[3] Buffalo Med. Jour., May, 1899.

[4] Münch. med. Woch., Dec. 27, 1898.

[5] Practitioner, Sept., 1898.

[6] Tr. Am. Orthoped. Assoc., 1898.

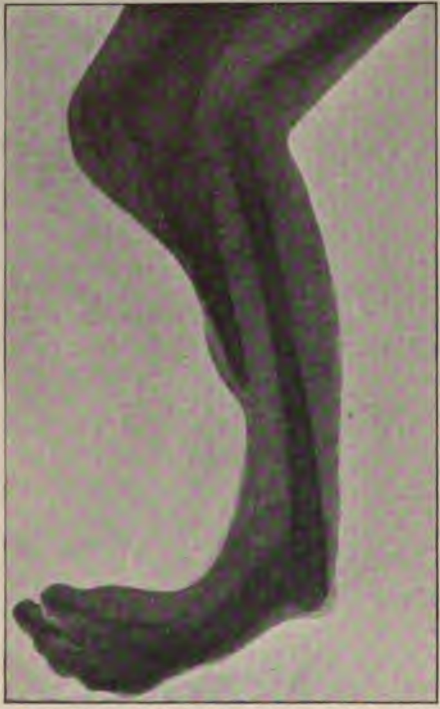

FIG. 78.—Congenital absence of part of the tibia (Practitioner, Sept., 1898).

Erasion Versus Excision in Childhood.—A. E. Maylard,[1] in an excellent article on this subject, in which the writer compares the various advantages to be obtained from one or the other of these procedures in cases in which they are indicated, unremittingly advocates erasion as the best operation to be performed upon tubercular joints in children, where it can be executed; and states that the younger the child the more imperative the practice. In the shoulder, if the disease is limited, the joint can be erased by turning the head well out of the socket. With the elbow, care must be taken to fix the limb at the time of operation. After operations on the knee, great care must be taken to prevent flexion. Lastly, with the ankle, the only precaution necessary is to prevent the patient making too soon use of it.

The Care of Crippled and Deformed Children.—N. M. Shaffer,[2] in an able address on this subject, emphasizes the importance and supplements the medical and surgical treatment of the physical ills of the body by a similar effort to educate the mind of the cripple. As the average cripple needs much time for treatment, the question of education or, indeed, of suitable mental occupation during the period of enforced mechanical treatment and prolonged convalescence is a most important one.

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[1] Edinb. Med. Jour., June, 1899.

[2] N. Y. Med. Jour., July 9, 1898.

OPHTHALMOLOGY.

BY HOWARD FORDE HANSELL, M. D., AND WENDELL REBER, M.D.,
OF PHILADELPHIA.

REFRACTION.

Visual Tests.—Landolt[1] criticizes Snellen's test-types on account of the unequal difficulty in distinguishing certain of the letters. He proposes in their stead a black circle on a white surface, presenting in some direction a gap which for the unit of acuteness of vision corresponds to an angle of one minute. He has given this circle the same thickness as the corresponding letters in Snellen's types, and has so chosen the dimensions that at a distance of 5 meters the circles correspond to the following degrees of visual acuity: 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1, 1.25, 1.50, 1.75, 2. By a movement of his hand the patient can indicate the direction of the gap. The greatest advantage claimed by Landolt is that these characters are purely a visual test, and exclude, as much as possible, intellectual functions; hence the visual test will be the same for illiterates as for the educated. H. Coley[2] touches upon a point in connection with vision which is of great importance in selecting sailors and signalmen—namely, quickness of vision or the faculty of distinguishing retinal impressions, which follow one another very rapidly. This quickness of sight seems to depend on the short persistence and short duration of the after-impression on the retina. The quicker each impression fades, the greater the power of rapidity in reading signals, in which respect there is a great difference in different individuals, irrespective of what is otherwise normal sight. To Mackay's[3] mind the key to the whole problem of visual tests in all the public services lies in the retention of competent examiners. McHardy[4] is convinced that the present eye-examinations as practised on applicants to the British Royal Cadets are mischievous and unfair in failing to exclude candidates who, even despite a high hypermetropia or hypermetropic astigmatism, may temporarily present normal vision. H. Bickerton[5] continues to inveigh against the negligence of the British Board of Trade to provide proper regulations for the visual and color qualifications of all candidates for admission to the merchant marine. In 2540 pupils M. Delbes[6] found 35% of the boys and 38% of the girls affected with follicular conjunctivitis; of these, 49 % of the boys and 53 % of the girls also had hypertrophied tonsils and adenoids. The author insists upon the necessity of a systematic examination of all school children's eyes. L. Howe [1] recommends the addition of oculists to the regular corps of school physicians who now are required by the New York State law to supervise school sanitation.

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[1] Brit. Med. Jour., Sept. 23, 1899.
[2] Brit. Med. Jour., Sept. 23, 1899.
[3] Brit. Med. Jour., Sept. 23, 1899.
[4] Ibid.
[5] Ibid.
[6] Trans. French. Oph. Cong., Oph. Rev., Nov., 1899.

Accommodation.—Tscherning [2] reaffirms his contention of the formation of an anterior lenticonus during the act of accommodation, supporting his assertion with facts obtained by study of the anterior surface of the lens two hours after death. This he was enabled to do by means of a contrivance of his own adjusted to the ophthalmometer of Javal. Huizinga [3] again emphasizes the necessity for noting the range of accommodation, and argues that the term accommodation asthenopia should be reserved for cases in which the ciliary muscles afford the patient, for a limited time, such accommodation as he is rightly entitled to, but whose capacity for what might be termed ciliary endurance is more or less diminished.

About Opticians.—N. Jenkins [4] points out that when 0.50 D. of astigmatism exists in one or both eyes and a difference of 0.25 D. or more in the refraction of persons beyond middle life, perfectly fitting reading lenses are seldom obtained from opticians. Lautenbach [5] also discusses this question, and points out not only the laxity of ethics, but also the ocular damage consequent upon the reference of patients to opticians by their family physicians. (See section on Glaucoma, this volume.)

Results of Eyestrain.—After careful study of Continental, English, and American textbooks on ophthalmology, G. M. Gould and Helen Murphy [6] show that American oculists are far in advance of our foreign brethren in placing eyestrain in its true relation to our present day high-pressure civilization. Perhaps it is not going too far to agree with what these authors say in the following: "We do not believe we exaggerate when we say that in America itself a million patients are being treated for stomachal, nutritional, nervous, and other reflex disturbances by drugs and what not, when their diseases are due to eyestrain." [If we were to modify this statement at all, it would be to state our conviction that eyestrain, coupled with physical inactivity, creates a vicious circle that for pathologic potentiality is unsurpassed.] In examining a large number of school children as to refraction Menzies [7] was struck by the fact that a large number of children who, under ordinary circumstances, would be considered mentally deficient, were easily able to keep pace with their companions when their various ocular defects had been corrected with glasses. In 1000 cases of refraction in private practice S. D. Risley [8] found that 50 % complained of headache, relieved in most cases by correction of the optical and muscular errors. He lays stress on the fact, well known to all ophthalmic surgeons, that the headaches are frequently independent of the use of the eyes, and that the patient, not suspecting any ocular cause, ascribes the trouble to biliousness, indigestion, and other constitutional affections for which for years they have been in the habit of absorbing large quantities of medicine with temporary relief only. In addition to the headaches some of Risley's cases exhibited insomnia, vertigo, and even chorea, all of which were relieved permanently by optical corrections and restoration of muscular equilibrium. He warns that immediate relief from such measures is not to be expected in a goodly number of such patients, since the pain is frequently due to pathologic changes in the eye itself, which requires time for cure. There is quite as much food for thought in George M. Gould's [1] assertion that: " Eyestrain is the most potent of all causes of crow's-feet and of pinched and suffering faces; and yet every second woman prefers the homeliness and evidence of years not-yet-arrived, to what she considers the hideousness of glasses—at least of spectacles." A case of reflex urticaria caused by eyestrain is reported by C. A. Oliver.[2] The subject was a healthy woman of 47, and correction of her ocular defects gave complete and permanent relief. C. A. Drew[3] strikes the key-note in observing that: " It is not the cross-eyed or near-sighted man who suffers from eyestrain; nor is it he whose astigmatism is so great that no effort of the ciliary muscles can compensate for the unequal curvature of the different corneal meridians. Rather is it he whose eyes can be kept in line and whose ciliary muscles can neutralize anatomic imperfections of the cornea." A. Bronner [4] calls attention to the fact that homatropin is often of benefit as temporary rest in certain cases of asthenopia. " Many patients," he says, " refuse to wear glasses constantly," and a rest period under homatropin is of great aid to such patients. During the year two more instances have come to report of epileptic convulsions cured by the wearing of lenses for high astigmatism. They are reported by C. M. Copp [5] as occurring in children of 9 and 8 years, both of whom had had typical epileptic convulsions for 5 years. There had been no return of the seizures, in the one case 5 months, in the other, one year, after putting on the glasses.

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[1] Buff. Med. Jour., Feb., 1899.

[2] Oph. Rec., April, 1899.

[3] Oph. Rec., April, 1899.

[4] Jour. Am. Med. Assn., Feb. 18, 1899.

[5] Phila. Med. Jour., July, 1899.

[6] Annals Ophthal., Oct., 1899.

[7] Brit. Med. Jour., Jan. 14, 1899.

[8] Phila. Med. Jour., Sept. 23, 1899.

Refraction and Diabetes.—Two cases of rapid change in the refraction of diabetics similar to that described by Risley[6] are reported. Grimsdale's [7] case occurred in a woman of 45, whose refraction changed suddenly from —0.50 D. to —2.00 D. Three weeks later the patient died of diabetic coma. Doyne[8] quotes the case of a diabetic, aged 43, whose refraction changed a whole diopter in 6 weeks; later, all sugar disappeared under treatment, and the patient became emmetropic. Auerbach[9] has observed an increase of from 1 to 2 D. of vertical astigmatism after tenotomy of the lateral recti muscles. With tenotomy of one of the recti and advancement of its antagonist, any previous vertical astigmatism was lessened. [We have ourselves noticed just such changes in 3 recent cases.]

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[1] Gaillard's Med. Jour.. April, 1899.

[2] Oph. Rec., Feb., 1899.

[3] Med. Rec., Sept. 9, 1899.

[4] Brit. Med. Jour., Sept. 23, 1899.

[5] N. Y. Med. Jour., Sept. 16, 1899.

[6] See YEAR BOOK, 1898.

[7] Brit. Med. Jour., Feb. 4. 1899.

[8] Brit. Med. Jour., Feb. 4, 1899.

[9] Woch. f. Ther. u. Hyg. d. Aug., Sept. 21, 1899.

Methods.—E. Jackson[1] is convinced that accurate retinoscopic measurements of many eyes cannot be made at a greater distance than 20 inches, and that this point is of vital importance to good retinoscopy. He commonly applies the test at distances of from 18 to 30 inches, a practice which he has adopted not in obedience to pathologic considerations, but rather in spite of them. For the detection of astigmatism of low degree J. Thorington[2] employs a chart. (Fig. 79.) Each square represents a visual angle of one minute, so that to the astigmatic eye the squares will coalesce and appear as straight lines. In 14 cases of conic cornea and irregular astigmatism Majewski[3] has used his modification of Lohnstein's hydrodiascope, which is shaped more like an ordinary pair of spectacles than Lohnstein's instrument. In 2 cases of highly irregular astigmatism Majewski reports extraordinary improvement in vision with these queer spectacles.

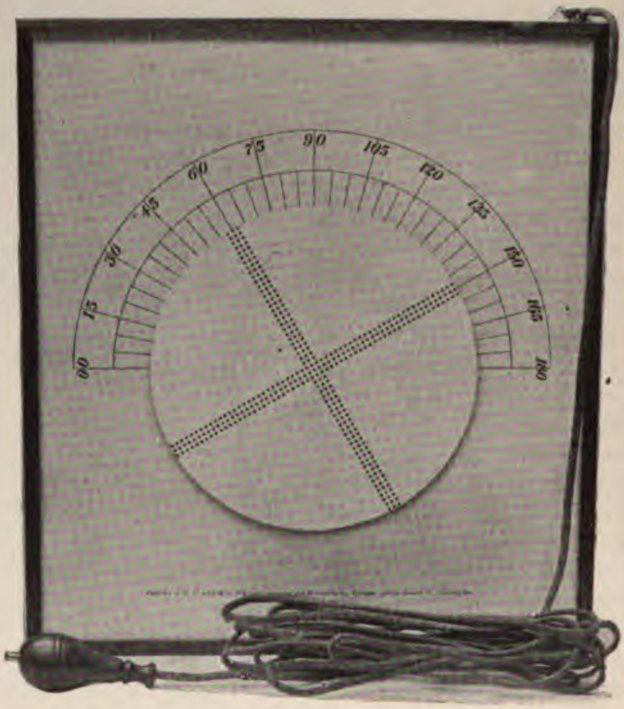

Fig. 79.—Thorington's astigmatic chart (Jour. Amer. Med. Assn., April 21, 1899).

Mydriatics.—E. Jackson[4] finds that while euphthalmin acts on the eye as a true mydriatic, its influence is feebler and briefer than that of homatropin. Its cycloplegic influence is slight, but it is the best agent we have for brief dilation of the pupil, standing next to cocain in value for ophthalmoscopy. The advantages of both drugs may be secured and their disadvantages reduced to a minimum by the following solution: Euphthalmin hydrochlorate, 1; cocain hydrochlorate, 1; distilled water, 100. Two per cent. to 5% solutions of euphthalmin alone are the most valuable. J. P. Morton[1] states that homatropin is used only in very difficult cases in Fuch's clinic (Vienna), and atropin is used for all such cases at Moorfield's Hospital in London, while at Edinburgh it is seldom used. In Fuch's clinic direct ophthalmoscopy is relied on rather than retinoscopy (always with the concave mirror), and no case is finished until the Javal instrument has been used; while at Moorfield's and Edinburgh he saw the ophthalmometer appealed to only once, while retinoscopy was quite in vogue. C. A. Dufour[2] reports a case of pronounced poisoning from the instillation of several drops of a 2% solution of eserin that was given one of his patients instead of 2% homatropin solution.

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[1] Oph. Rec., Dec., 1898.

[2] Jour. Am. Med. Assn., April 22, 1899.

[3] Clin. Monats. f. Aug., May, 1899.

[4] Oph. Rec., July, 1899.

Anisometropia.—Probably no class of congenital abnormity of vision is so annoying to the patient or more puzzling to the surgeon than anisometropia and antimetropia. Risley[3] thinks it wise to fully correct each eye in these cases. If comfort is not thus secured, the attempt can then be made to abandon the more defective eye. [It is our own feeling that attempts to secure and maintain binocular single vision by the most painstaking attention to the muscular status are also in order before abandoning any eye to its fate.] N. Jenkins[4] also believes it best to correct only one eye, placing before the affected eye a glass ground opaque in its inner, outer, upper, or lower half.

Myopia.—F. Valk[5] properly calls attention to the fact that a high myope may subjectively accept a cylinder at almost any axis. [This constitutes the class of cases in which the ophthalmometer is of most brilliant assistance.] C. Weiland[6] believes with Hippel, Vacher, Pflueger, and others, that the changes after extraction of the lens in high myopes seem to bring in their train a shortening of the globe. With this contention Jackson[7] cannot agree, and insists that when the real theoretic effect of removing the lens in myopia is known, it is found to agree substantially with the effect clinically observed. There is an abundance of uncommon sense in A. A. Hubbell's[8] plea for the nonsurgical treatment of myopia. He urges prophylaxis as found in the wearing of full corrections by youthful myopes, and prevention against vicious reading distance. He insists that accommodation is not prejudicial to the myopic eye; that it is, indeed, beneficial, and should be preserved and exercised within the same limits as in any other eye, barring, of course, pronounced disease. Save in presbyopes, it is only in exceptional conditions that he cuts down the distance correction for near work. The advisability of removing the highly myopic lens, says K. Scott,[1] must be viewed from the patient's standpoint only, and does not fall in the same category as senile cataract, because the high myope has much to lose, and so long as there is any possibility of adding to the vision with success, operation should not be thought of. [This is the soundest sense we have encountered on this subject—at least as far as America is concerned.] Among 18,000 new patients in his clinic Prof. Fuchs[2] found only 10 high myopes with suitable cases for operation. His opinion is that, while the operation is justifiable in a certain number of cases, it is performed far too often. V. Hippel[3] has collected statistics which prove that detachment of the retina in myopes is less frequent in cases that have been operated upon by extraction of the lens than those that have not. Among 1747 eyes of myopes greater than 10 D. he found 117 cases of detachment = 6.7%. After 184 operations he found 10 detachments = 5.4%. Fisher[4] reviews the statistics of retinal detachment in high myopia, both after removal of the lens and in unoperated cases, and believes that the operation increases the risk of this accident elevenfold. This does not necessarily deter him from operating, but he insists that cases should be carefully selected and the patient always apprised of the possibilities. Schmidt-Rimpler[5] reports 19 unfavorable results and lists as the dangers, possible infection, increase of tension, choroidal hemorrhage, vitreous clouding, and retinal detachment. He never operates on high myopes who have but one functioning eye. H. V. Würdemann[6] would limit the operation to myopes of over —12 D. who suffer great inconvenience from their glasses. The ideal cases are those of from —17 to —18 D. Cases of active disease, such as progressive myopia, choroiditis, fluid vitreous, or retinal detachment, are not eligible for operation. The dangers are more than outweighed by the results, which are increased visual acuity and visual field, and added endurance of the eye. [There are many who will dissent from the proposition that choroiditis or progressive myopia are contraindications to removal of the lens in high myopes. Indeed, there are those who look upon these two conditions as signals for operative intervention.] In 103 operated cases Pflueger[7] was able to follow 95 of them for a considerable period after operation. His experience is that removal of the lens improves the circulation of the eye and does not predispose to detachment of the retina. Rogman[8] lost 1 out of 21 cases from retinal detachment. The optical value of the lens ranged from 16 to 26 D. Lodge,[9] of Halifax, records needling of cataract with subsequent extraction of the lens in 5 cases without any disagreeable sequels. Haight[10] prefers discission and subsequent extraction of the soft lens without iridectomy. Of the needling operation alone he reports 4 cases.

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[1] Canadian Prac. and Rev., March, 1899.
[2] Knapp's Arch., July, 1899.
[3] Oph. Rec., Dec., 1899.
[4] Jour. Am. Med. Assn., Feb. 18, 1899.
[5] Oph. Rec., Dec., 1898.
[6] Annals Oph., July, 1899.
[7] Ibid.
[8] Oph. Rec., Dec., 1898.

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[1] The Lancet, Sept. 24, 1898.

[2] Wien. klin. Woch., Feb., 1899.

[3] IX. Cong. Inter. Oph., La Clin. Ophtal., Oct. 10, 1899.

[4] Centralbl. f. Aug., Feb., 1899.

[5] Die Ther. der Gegenw., April, 1899.

[6] Annals Oph., April, 1899.

[7] Annals d'Oculist, April, 1899.

[8] Annals d'Oculist, Jan., 1899.

[9] Brit. Med. Jour., Sept. 23, 1899.

[10] Jour. Am. Med. Assn., July 15, 1899.

In a discussion of operative treatment of high myopia at the meeting of the Ophthalmological Society[1] of the United Kingdom, June 9, 1899, the consensus of opinion was in favor of operation. The contraindications are well-marked disease of the vitreous, tendency to intraocular hemorrhage, softening of the globe, and impairment of the visual field. Detachment of the retina, as a consequence of the operation, was less frequent than had been thought, but it was more likely to occur than in eyes that had not been operated upon.

A New Bifocal.—At the April meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia G. C. Harlan[2] showed a new bifocal lens made by J. L. Borsch, of Philadelphia. The present improved form consists of 3 elementary lenses (see cut), the entire curves of which are made to coincide absolutely. The large glass is spliced into halves, which are cemented together after the small one is inserted between them. The larger lenses are made of crown glass, or one crown and the other of flint, while the small lens is always made of flint glass of a much higher index. The finished glasses present no indication of their method of construction, and are a veritable puzzle to the uninitiated. Drs. Harlan and William Thompson spoke in favor of the lens both from personal observance and that of patients. Lenses for the treatment of amblyopia exanopsia (argamblyopia of Gould) have been devised by N. B. Jenkins.[3] By allowing a varying segment of the lens to remain clear, Jenkins claims that judicious use of such lens will restore functionless eyes to usefulness in from 6 to 10 weeks.

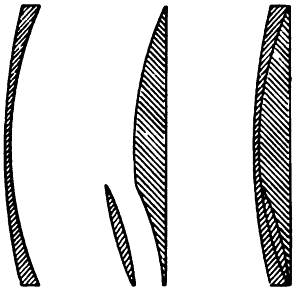
Fig. 80.—A new bifocal lens (Ophthal. Record, June, 1899).

MUSCLES.

Nomenclature.—In view of the considerable confusion concerning the precise meaning attaching to the terms used in describing muscular states of the eyes, A. Duane[4] offers the following nomenclature:

1. Movements of each eye separately.
   - Ductions
     - (a) abduction.
     - (b) adduction.
     - (c) sursumduction or deorsumduction.
2. Associated (conjunctive) parallel movements of the eyes.
   - Versions
     - (a) dextroversion.
     - (b) levoversion.
     - (c) sursumversion or deorsumversion.

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[1] Am. Jour. Oph., Aug., 1899.

[2] Oph. Rec., June, 1899.

[3] Annals Oph., Jan., 1899.

[4] Oph. Rec., Feb., 1899.

3. Associated disjunctive movements of the eyes.
   - Vergences
     - (*a*) divergence.
     - (*b*) convergence.
     - (*c*) sursumvergence.
4. Rotations of the vertical corneal meridians.
   - Torsions
     - (*a*) intorsion.
     - (*b*) extorsion.
     - (*c*) distorsion.
     - (*d*) contorsion.

[This is altogether the best classification yet offered, and we hope it may meet with wide acceptance and use.]

Normal Movements.—Gamble [1] speaks of a young man who could at any time set up a pronounced lateral nystagmus in his eyes: at no time was it involuntary. His eyes were perfectly normal in every respect. [This is a very important clinical fact, as it shows beyond all doubt that the external ocular muscles are under cortical control.]

G. C. Savage [2] distinguishes between sthenic and asthenic orthophoria. In the former the phorometer shows muscular balance both for infinity and the near point, and further shows the musculodynamics for each pair of associated muscles to equal or exceed the standard. Asthenic orthophoria also shows muscular balance, but the musculodynamic test will show one or more associated pairs of muscles to be wanting in relative power. In an article on this same subject Willetts[3] insists on the necessity of adjusting all muscular deficiencies, as well as correcting the errors of refraction in neurasthenics. W. L. Pyle,[4] on the other hand, believes refractive errors are at the bottom of most heterophorias, and believes that study of the oblique muscles is useless and thoroughly unreliable. As a test for inefficiency (insufficiency) of the ocular muscles, G. J. Bull,[5] of Paris, employs the ordinary stereoscope armed with a card having two circular discs as test-objects. Above the right disc is a small dot or cross, and below the left disc a like dot or cross. When the discs are properly fused, the patient sees a single disc with a controller above and below, and the surgeon is thus assured by the seeing of the composite image that both eyes are taking part in the act—in which respect this test, he claims, is superior to most other fusion tests. L. Guaita and L. Bardelli [6] have taken the muscle status before and after the use, in each eye, of 3 drops of cocain 5 minutes apart, and from their investigations conclude that one of the actions of cocain upon the eye is to unmask a good deal of the latent heterophoria that may be present. [If this can be substantiated, it is a fact of tremendous and far-reaching importance.]

Esophoria.—C. E. Prentice [7] defines eyestrain as the use of more than ordinary motive force to bring about the best vision under some anatomic muscular defect. Manifest eyestrain is revealed by any one of the many deforming tests, such as the Maddox rod. Eyestrain is latent when it is not revealed by these tests, in which case the motive or nerve force necessary to overcome the anatomic defect has become a fixed nerve-impulse, which is not suspended by any of the previously mentioned tests or even during sleep. He reports some astonishing cures of diabetes, anemia, dysmenorrhea, and neurasthenia by what he terms the "repression treatment" of esophoria. This consists in combining prisms (which vary with the muscular imbalance), bases in, with a convex sphere which reduces vision to about $\frac{20}{80}$ (fogging manœuver), with which combination glasses he has the patient read from one-quarter to one-half hour at night before retiring.

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[1] Jour. Am. Med. Assn., March 4, 1899.

[2] Oph. Rec., Jan., 1899.

[3] Phila. Med. Jour., July, 1899.

[4] Interna. Med. Mag., April. 1899.

[5] Brit. Med. Jour., Sept. 23, 1899.

[6] Annals Ophthal., Oct., 1899.

[7] N. Y. Med. Jour., Aug. 27, 1898.

Exophoria.—In 1000 North American Indians and 800 uncivilized African negroes examined by the vertical diplopia test, Chalmers Prentice [1] found a general tendency of the eyes to diverge, only 3 cases of convergence presenting in the entire 1800 aborigines. Believing that the postmortem findings might shed light on the question of the real anatomic position of the eyes, Prentice tabulated the conditions in 3000 cases examined within 24 to 48 hours after death, and not in a single case did he find the eyes straight. In 17 persons who had parallel ocular axes he found divergence postmortem. He therefore concludes that even in civilized man there is a tendency toward divergence, which is overcome by a fixed innervation of the interni. He further believes that the evolution of the eyes (and especially the act of binocular vision) up to the present state of civilization is not yet completed ; that were it so, the nerve-energy now required to maintain binocular single vision could be utilized in performing other functions more perfectly, thus adding comfort and years to life. [In reading this article we were forcibly reminded of a conversation with Dr. Edw. Jackson (now of Denver, Col.), 2 years ago, in the course of which he set forth exactly the foregoing views.] According to G. T. Stevens,[2] exophoria is not an ultimate and independent condition. Study of the primary state by the aid of the clinoscope will, in the vast majority of cases, show that the vertical meridian of each eye leans outward—that is, there is positive declination in each eye. He takes the following advanced ground : "I am sure I make no mistake in saying that when the excess of vertical rotation in eyes is considered in connection with the normal declination of the retinal meridians, it will no longer be necessary to perform well-known and standard operations for converging or diverging squint. This statement, while strictly conforming to the theory of the action of the muscles, is not a hypothesis built solely on that theory, but is the actual growth from the experiences of every-day work." Again : "By the knowledge and proper interpretation of the vertical rotations of the eyes (as shown by tropometer), and by the corresponding knowledge and interpretation of the relations of the vertical meridians to the cranium (as revealed by the clinoscope), we are able to place heterophoria and heterotropia in their exact physiologic relations to each other.

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[1] The Lancet, June 17, 1899.

[2] Annals of Oph., April, 1899.

. . . . I speak the words of truth and sobriety when I say that in the near future oculists will hold closer relations to the general physical well being of their patients and of the community than any other class of medical practitioners." Stevens further says that boys and girls who throw the forehead far in advance and the chin into the breast, all show by the tropometer that they have the eyes adjusted for a plane much higher than the horizon. This head position in many cases induces defective respiration, and often prepares a perfect soil for the activity of the tubercle bacillus. All this, he claims, may be averted by tenotomy of both superior recti (correction of the anaphoria). [This doctrine is startling enough to start all thinking workers into deeper study of every muscular problem that comes before them.] As an unusual symptom of exophoria, Neuschueler [1] mentions neuralgia of all the upper teeth on one side, which was entirely relieved by the use of prisms. In 33 cases of varying degrees of convergence insufficiency W. C. Posey [2] has done de Wecker's capsular advancement. Of the 33, 5 were exotropias of low grade, the remainder exophorias ranging from 6° to 25° and without vertical deviation. Although after a lapse of 2 years there seemed but little objective gain, the improvement in the symptoms was marked and would seem to justify the operation. The average gain from the operation was 6 prism degrees.

Hyperphoria.—G. C. Savage [3] draws the line between sthenic and asthenic esophoria and exophoria, but holds that hyperphoria and cataphoria are always intrinsic—that is, never due to refraction anomalies. G. T. Stevens [4] points out that there are both normal and abnormal declinations of the vertical meridians of the retina, and states that there is as much variation in the position of the normal vertical meridian in different individuals as there is difference in the refractive status. If the declination does not exceed a single degree for the two eyes (best measured by the clinoscope), it may generally be disregarded. Its local effects are asthenopia, conjunctival irritation, and most of the symptoms of exophoria. Vertigo and epilepsy are occasionally among its general effects. It is not only safe, but very often desirable in such cases to reduce upward rotation by moderate tenotomy of both superior recti. In many cases of heterophoria the correction of the declination corrects the heterophoria and, conversely, operations for heterophoria often do much toward correcting the declination. For the estimation of vertical rotations F. B. Eaton [5] has improved his reflected tropometer by attaching the instrument to the head. (Fig. 81.) [The main objection to this instrument is the necessary geometric calculations of the findings, in which respect Eaton's device must be considered somewhat inferior to that of Stevens'.] Eaton [6] also offers an arc tropometer (Fig. 83), with which he claims the accuracy is such that the existence of hyperphoria and of overaction or underaction of the levators or depressors can invariably be detected. F. H. Verhoeff[1] has devised a reflecting phorometer, after much use of which he states that the existence of a torsional combination power has been assumed by Stevens without sufficient evidence; he states, furthermore, that Savage has fallen into error in affirming the existence of cyclophoria. B. L. Dunn[2] shows how many patients, by looking and especially by writing through the lowermost portion of their glasses, inflict needless pain upon their vertical muscles. He urges downward decentration of all reading glasses from 5 mm. to 10 mm., because of his belief that a certain class of pseudoinsufficiency is due to the neglect of this precaution. Out of 2300 cases of refraction in private practice Posey[3] found hyperphoria of at least 1° 287 times. It was associated with exophoria 122 times, with esophoria 111 times, and 54 times with what the writer calls lateral orthophoria—that is, esophoria of 2° for infinity and exophoria at 20 inches. Principal among his conclusions are the

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[1] Rec. d'Ophtal., Aug., 1899.

[2] Annals Oph., Jan., 1899.

[3] Oph. Rec., Jan., 1899.

[4] Knapp's Arch., Jan., 1899.

[5] Oph. Rec., Aug., 1899.

[6] Ibid.

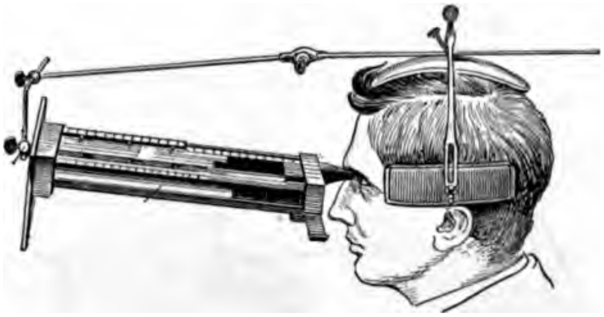

Fig. 81.—Instrument for measuring the monocular field of fixation (Ophthal. Record, Aug., 1899).

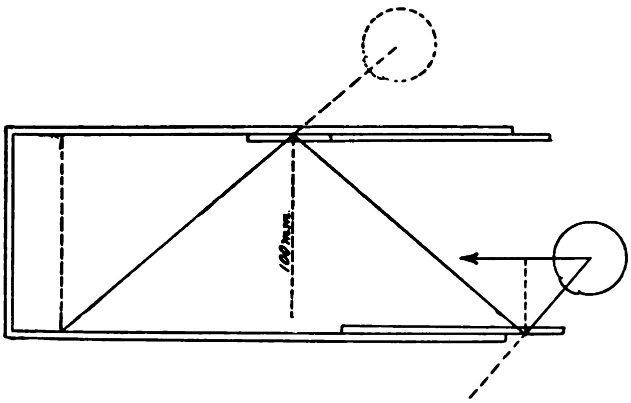

Fig. 82.—Ophthal. Record, Aug., 1899.

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[1] Trans. Am. Oph. Soc., 1899.

[2] Knapp's Arch., Sept., 1899.

[3] Phila. Med. Jour., April 15, 1899.

following: Hyperphoria occurs most frequently to the extent of about 2°; is manifest in about 13% of all refraction cases; is not necessarily influenced by high esophoria or exophoria; almost invariably accompanies anisometropia; is an invariable complication of both convergent and divergent squint; is frequently latent, and very little, if any, influenced by correction of refraction-errors. Its most frequent symptom is headache, while typical attacks of migraine may be expected in about 5% of all cases.

Strabismus Theories.—According to Ph. Steffan,[1] whose experience embraces a period of 38 years, the theory that the amblyopia of a squinting eye depends on lack of use is no longer tenable. There is, as yet, only negative evidence that such amblyopia is congenital. The fact is that prevention of the use of congenitally normal eyes (from whatsoever cause) produces psychic blindness, which will gradually disappear after the hindrance to the use of the eyes is removed. He states that the lack of binocular single vision in strabismus, as well as the formation of incorrect relations of corresponding retinal points, depends upon either failure in acquiring, or defective acquisition of, the visual act with both eyes during the first years of life. The theory of

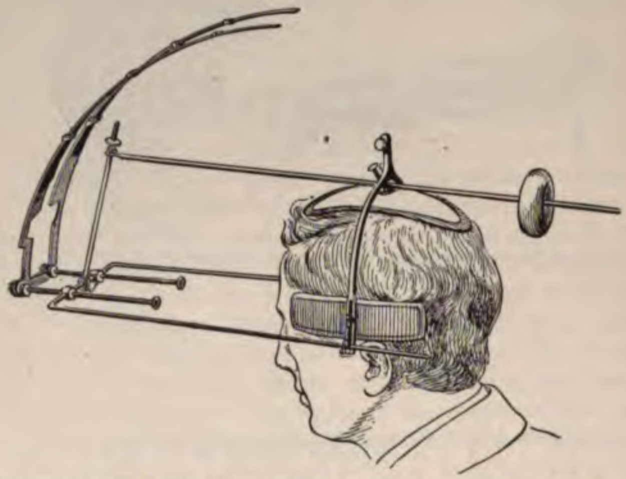

Fig. 83.—Instrument for measuring the monocular field of fixation (Ophthal. Record, Aug., 1899).

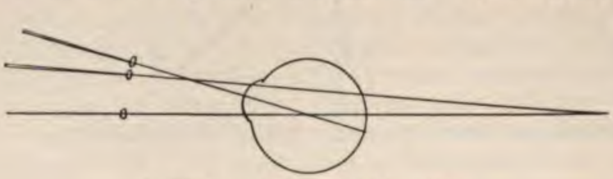

Fig. 84.—Ophthal. Record, Aug., 1899.

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[1] Knapp's Arch., Sept., 1899.

Valk[1] is that strabismus is due almost entirely to disturbance of the balance of power of the straight muscles, and that innervation or position of rest has nothing at all to do with it. His study of 130 of his own cases (113 convergent, 14 divergent) arranges all squints in 2 classes. In the first class we find amblyopia always congenital as the prime and sole cause, with vision less than $\frac{20}{100}$, all associated with a normal balance of power in the lateral muscles; in the second class there is always present a refraction-error with an "antecedent anomaly of the muscles." The treatment of the first class is cosmetic only, always directed toward the squinting eye, combining tucking of the weak muscle with complete tenotomy of the powerful one; Valk has never seen failure from such combination in this class of cases. The management of the second class consists in the use of mydriatic corrections and such subsequent tenotomies and advancements as may be necessary. Duane's[2] comment on his own case of paralysis of divergence is a masterly review of the theoretic aspects of strabismus that will well repay careful reading. De Micas,[3] from observation of 21 of his own cases and a review of the cases of Valude, Borel, Parinaud, and Charcot, is convinced that hysteric symptoms give rise to squint; that its establishment requires a nervous defect plus a disturbance of the organs concerned in monocular vision; and that direct hereditary squint is rare. Antonelli[4] says that 50% of the children of luetics squint in childhood (!).

Treatment of Strabismus.—Priestley Smith[5] insists that the rational treatment of strabismus is, in many cases, a very early treatment; that in every case the child should be thoroughly examined soon after the deviation makes its appearance, even to the point of operation if necessary; and that this principle should be urged by oculists upon the whole profession, in order that it may thus reach the public. O. Barnes'[6] treatment of 24 cases of different varieties of squint restored full binocular vision to 23 of them, the patients ranging from 2 to 43 years of age. His method is to correct all refraction-errors, to practise orthoptic exercises, to perform tenotomies in advance, if necessary, and to refine the surgical work with renewed orthoptic exercises. Fergus'[7] management of strabismus is, first, orthoptic; second, optic; third, operative. [American surgeons will usually place optical treatment first.] Schweigger[8] emphasizes the practical advantage of the linear measuring of squints as proposed by Graefe. The customary measuring of the angle of deviation furnishes no practical operative indications, while the linear measure, which is easy to carry out, shows at once the amount of shortening to be done in the advancement. He believes that no good can result from advancement alone without tenotomy of the opposing muscle. If the inward deviation is more than 5 mm. to 6 mm., or the outward more than 4 mm. to 5 mm., tenotomy of the overactive muscle must be done along with advancement of its antagonist. He never corrects more than 6 mm. of deviation by operation on one eye. As an aid in the technic of the operation and as a measure of the amount of deviation to be corrected, he offers what seems to be a very practical little instrument. D. M. Greene's [1] method of muscle-folding (based upon the methods of Noyes and LaGleize) instead of resection, looks rather promising. He has devised an instrument for folding a muscle on itself which will be best understood by reference to the cut. His lines of incision are likewise there best shown. With this tendon-folder he claims the operation is easier and quicker done and with less risk than by any of the older methods. The tendon is perfectly folded and held while the catgut suture is inserted and securely tied across fibers of the tendon instead of lengthwise. Further experimental observations concerning the check ligament are contributed by J. E. Colburn. [2] He believes it has an important influence in many cases of heterophoria, which may, to some degree, explain the diversity of opinion as to the merits and demerits of the various operations for the relief of these anomalies. Wolffberg's [3] idea is that after a successful tenotomy the squinting eye is improved not only as regards sight, but also in color-sense. In discussing this question Javal [4] expressed the opinion that the best results are obtained when both eyes are operated upon between the eighth and tenth year. Fournier [5] observed that strabismus was found so often in hereditary lues as to suggest a casual connection. In 52 children so affected

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[1] Oph. Rec., Sept., 1899.

[2] Knapp's Arch., May, 1899.

[3] Annals d'Oculist, Feb., 1899.

[4] Clinical Reporter, April 1, 1899.

[5] The Lancet, Sept. 23, 1899.

[6] Annals Oph., 1899.

[7] Glasgow Med. Jour., Sept., 1898.

[8] Knapp's Arch., July, 1899.

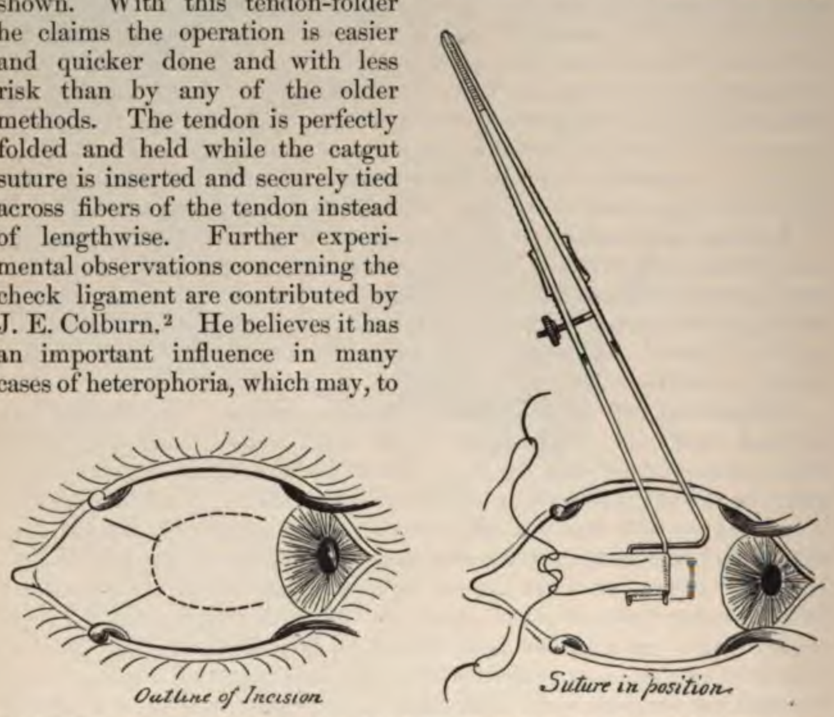

Fig. 85.—Correction of divergent strabismus by a new method and new instrument (Ophthal. Rec., Sept., 1899).

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[1] Oph. Rec., Sept., 1899.
[2] Oph. Rec., March, 1899.
[3] Woch. f. Ther. u. Hyg. d. Aug., Jan. 19, 1899.
[4] Ibid.
[5] Ibid.

he found 21 who squinted. He also believes that parental tuberculosis and alcoholism play a rôle. While Panas [1] and Javal [2] were agreed that strabismus was not of such central origin as contended by Fournier, Panas believed in operating on one eye only. His operation for strabismus (which really consists in stretching the tendon before cutting through it) has been tried in 4 cases by D. B. St. John Roosa with successful results. [Of these 4 cases, 2 were under 6 years of age and rare. From the meager case-history submitted we cannot but feel that had these little patients been given proper mydriatic corrections to wear, they would not only have regained full binocular single vision, but would likely have escaped the divergent strabismus with which, in all probability, they will be afflicted about their twenty-fifth year.] [Advancement operations are not always crowned with success, at least in our hands.] Walmsley's [3] result was truly phenomenal. Notwithstanding a divergence of 30 years' standing, tenotomy and advancement of the internus of the squinting eye restored binocular and full vision in that eye—all this in spite of the fact that "the internal muscle was found atrophied from prolonged disuse." In another case of high divergent strabismus (50° on the perimeter) in which tenotomy of both externi had been done some years previously, W. C. Posey [4] advanced both interni to the utmost degree. Ten days later there were 30° of crossed diplopia and 12° of right hyperopia. The patient was then instructed in the use of a Krool's stereoscope, and after a few weeks of persistent effort with it could fuse images of a candle at 5 meters. By this time the eyes were practically parallel, and with regular exercise with prisms, bases out, they have so remained for 2 years.

Palsies.—H. T. Patrick [5] thinks that fully 90% of all palsies of ocular muscles in adults may be referred to tabes, syphilis, or general paresis; and of these tabes is the most frequent cause of such paralysis. True isolated nuclear palsy of any individual ocular muscle is so rare that much interest attaches to the case reported by O. Oblath.[6] The patient, an engineer 48 years old, fell a distance of several yards, landing on his occiput. Two days later he showed palsy of the left internal rectus without involvement of any other extraocular or intraocular muscle. Oblath could find no peripheral, orbital, fascicular, nor cortical basis for the palsy, but found that all the symptoms agreed perfectly with the picture of nuclear palsy. H. F. Hansell and Wm. G. Spiller [7] report 2 cases of unilateral total ophthalmoplegia. In the first instance a man of 30 had an umbrella ferrule thrust into his right eye back through the orbit, producing crossed hemiplegia with complete paralysis of the right eye. In the second case the injury consisted in the fracture of the anterior plate of the frontal sinus without rupture of the skin. With the exception of ptosis, the palsy of the left eye was complete. J. H. Lloyd [8] puts on record two instances of unilateral ophthalmoplegia. The first occurred in a woman, closely allied in its features to the type of cases originally described by Hutchinson. In the second[1] case (a man of 56) the ophthalmoplegia, which was total, was associated with anomalous conditions in the area presided over by the fifth nerve. The first was nuclear; the latter was due to a lesion probably anterior to the Gasserian ganglion. De Schweinitz[2] chronicles a case of complete right oculomotor palsy without involvement of the ciliary muscle, occurring in a 22-year-old man, during relapse after severe typhoid fever. Four months later ptosis had disappeared, but upward, downward, and inward rotation was still limited. Ocular palsy following facial herpes, occurring in a man of 30, is reported by Rutter,[3] and congenital absence of the external rectus by J. O. Tansley.[4] Out of 80,000 patients, P. Silex[5] found but 2 instances of progressive paralysis of the levator. Both were women, 62 and 68 years of age, married, had never been seriously ill nor infected, had borne healthy children, felt well and cheerful in spite of their age, and gave no history of hereditary predisposition. Silex agrees with Fuchs in the belief that this is a primary muscular degeneration, but considers it a myopathic form of progressive muscular atrophy rather than sui generis.

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[1] Ibid. [2] Ibid. [3] Univ. Med. Mag., Nov., 1898.
[4] Jour. of Eye, Ear, and Throat Dis., July, 1899.
[5] Medicine, Nov., 1899. [6] Beit. z. Augen., Jan., 1899.
[7] Annals of Oph., July, 1899. [8] Phila. Med. Jour., June 3, 1899.

EYE IN GENERAL DISEASE.

Tuberculosis.—G. H. Edington's[6] case of purulent choroiditis following operation on a tuberculous patient proves that dissemination of tubercle can be caused by surgical trauma in such patients. The child who was operated on for tuberculous swelling of the elbow and knee afterward developed a very sore eye on the same side, which, after removal, proved to be the site of a tuberculous process. In Mazet's[7] case a child 3 years old, in perfectly good health, and of negative parental history, was the subject of primary tuberculous periostitis of the orbit. Injection experiments with the fluid tapped from the orbit proved its tuberculous character.

Leprosy.—Judging from the report of Trantas,[8] of Constantinople, leprosy occurring in the visual sphere is most likely to show itself first at or near the corneoscleral margin, setting up a sclerosing keratitis, which process later involves the iris and the deeper structures.

Influenza.—O. Walter[9] has twice seen pseudoglaucoma following la grippe, and is inclined to view the disease as a serous cyclitis. Galezowski[10] classes the ocular complications of epidemic influenza as conjunctivitis, lacrimal affections, corneal affections, involvement of the ocular nervous centers, and serous retinitis. To these, Ramos[11] adds edema of the lids and of the conjunctiva. Lefrancois[1] mentions pneumococcal cellulitis of the orbit following influenza in a child. The infection was traceable *directly* to the influenza microbe.

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[1] Univ. Med. Mag., Oct., 1899.

[2] Oph. Rec., June, 1899.

[3] The Lancet, Feb. 4, 1899.

[4] Trans. Am. Oph. Soc., 1899.

[5] Knapp's Arch., July, 1899.

[6] The Lancet, Feb. 11, 1899.

[7] Rec. d'Ophtal., June, 1899.

[8] Ophthal. Review, Nov., 1899.

[9] Die ophthal. Klin., June 5, 1899.

[10] Rec. d'Ophtal., Dec., 1899.

[11] Gaz. Med. de Mexico, May 1, 1899.

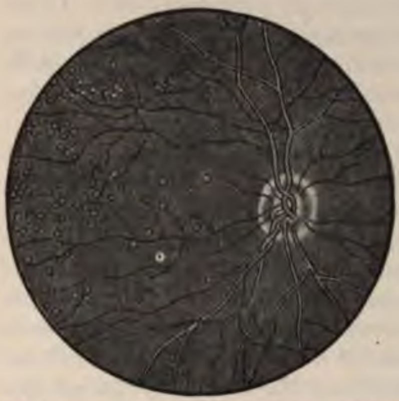

Fig. 86.—Symmetric exudative retinitis (Ophthal. Rec., Oct., 1899).

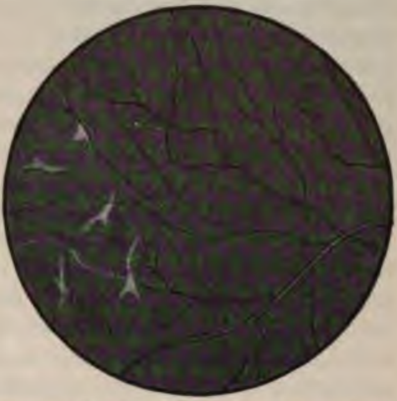

Fig. 87.—Proliferative retinitis, of hemorrhagic origin, following yellow fever (Ophthal. Rec., Oct., 1899).

Liver.—W. Dolganoff[2] noted the following changes in the eye after ligation of the gallbladder of 4 dogs: Edema of the optic nerve and retina, distention of the retinal and choroidal vessels, leukocytosis, and fibrinous exudate into the vitreous.

Typhoid Fever.—That typhoid fever may cause optic neuritis similar to that seen in nephritis and meningitis is shown by C. B. Hartnell's[3] case of typhoid, which pursued a fairly regular course until the sixteenth day, when inequality of the pupils and double optic neuritis developed. The autopsy revealed typical involvement of Peyer's patches. Symmetric exudative retinitis is mentioned by W. K. Rogers[4] following in the wake of typhoid fever. The symmetry in the small deposits throughout both retinas was striking. (See Fig. 86.) He has also studied[5] the retinal changes seen during and after intermittent fever (Fig. 88), and further protrays the characteristics of proliferative retinitis caused by yellow fever. (Fig. 87.) These 3

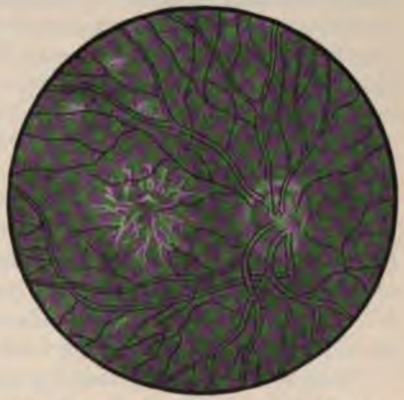

Fig. 88.—Showing changes 8 months after intermittent fever (Ophthal. Rec., Oct., 1899).

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[1] Trans. French Oph. Cong., Oph. Rev., Nov., 1899.

[2] Knapp's Arch., Sept., 1899.

[3] St. Louis M. and S. J., Dec. 12, 1898.

[4] Ophthal. Rec., Oct., 1899.

[5] Ibid.

cases were encountered among the troops returned from Cuba and Porto Rico. B. L. Milliken[1] speaks of 3 cases of metastatic panophthalmitis, one occurring after typhoid fever, one after probable septic endocarditis, and one coincident with pneumonia that later proved fatal. Among the ocular complications of typhoid fever A. A. Hubbell[2] mentions hypopyon, various inflammations of the uveal tract, retrobulbar and intraocular neuritis, and panophthalmitis. Prominent among the postfebrile manifestations are ocular palsies and optic-nerve atrophy.

Uterine Diseases.—C. Mazet[3] traces a causative connection between recurring iritis in women the subjects of metritis and the uterine diseases, and bases his assertion on the ground that there was in his cases no other assignable cause. The attacks of iritis occurred coincidently with the menstrual epochs, and subsided when they had passed. The microorganisms penetrated through the ulcerated uterine mucous membrane into the circulation, and were conveyed by it to the eye; or, as Cohn says, the congestion of the choroidal veins during menstruation easily leads to inflammation. Bacteriologic examination has demonstrated nothing.

Blood Diseases.—H. M. Bannister[4] gives full histories concerning 2 young women in whom there was joint occurrence of optic neuritis and marked chlorosis. In the first case the swelling of the nerve-heads was sufficient to raise the question of brain-tumor. It was soon settled, however, by the rapid disappearance of the symptoms under iron and arsenic. [It is hard to put down the thought that this variety of papillitis bears some intimate relation to the autotoxemia which is nearly always a part of such blood-vices as anemia, chlorosis, chloranemia, and their kindred.]

Albuminuria.—A. Stirling[5] arranges the visible ocular changes in albuminuria under 5 heads: (1) Vascular changes; (2) hemorrhages; (3) white plaques; (4) exudations; (5) neuritis. His treatment is purging, diaphoresis, climate, and hygiene. Iritis and cataract are probably little, if any, more common in albuminurics than in the general population. To Belt's statistical study of albuminuric retinitis (embracing 419 cases) F. T. Rogers[6] adds 18 records, and states his belief that 7 out of 10 such patients will die within a year after the appearance of the eye-lesions, and 9 out of 10 will die within 2 years.

Diabetes.—The principal ocular changes met with in diabetics are, according to Dianoux,[7] lenticular opacity, vascular lesions, capillary hemorrhages, and permanent central scotoma.

Hysteria.—Year by year the ocular signs of hysteria are being accorded more and more importance in the diagnosis of this disorder by both neurologists and ophthalmologists. For instance, B. Sachs[8] goes over the whole field of hysteria (palsies of the intraocular and extraocular muscles, also hysteric amaurosis), and points out the great importance of looking for the more important stigmas of hysteria in studying subjective conditions of the eye, since the diagnosis may depend, to a very large degree, upon the presence or absence of hysteric manifestations. The interesting hysteric phenomenon of transfer of tactile to visual sensations occurring in a girl of 14 is fully reported by F. Fry [1]. When various simple geometric figures were traced on her (anesthetic) right arm without her knowledge, she saw them distinctly on the wall of the room, naming them without hesitation. When she looked at a colored screen during the tracing, she always saw the figures surrounded by a halo complementary to the color of the screen. C. A. Wood [2] lays particular stress on reversal of the color-fields in the diagnosis of hysteric ocular affections. Other symptoms are monocular polyopia, ring scotoma, contraction of the form-field, blepharospasm, paralysis of the ciliary muscle, true retinal hyperesthesia, pseudoparalytic ptosis, and anesthesia of the skin of the lids. M. W. Zimmerman [3] believes that moderate contraction of the visual form-field alone is not conclusive evidence of hysteria, although extreme proportional contraction for form and color would rather strongly suggest it. Complete or persistent partial reversal, not organic, is almost certainly hysteric. C. J. Swan[4] records the cure of monocular hysteric blindness in a young man by suggestion. The theory of hysteria that he accepts is that "it is entirely psychic and due to autosuggestion, that is to be overcome only by countersuggestion." In J. Ramos' [5] case there occurred sudden bilateral hysteric blindness in a perfectly healthy young man, who recovered full vision in 15 days. Treatment is not mentioned. Monocular polyopia was the form the disorder took in a case reported by O. Wernicke.[6] The condition appeared after a prolonged and very difficult labor, and was part of a general hysteric condition. A very carefully studied case of hysteric hemiplegia with rigidity of one pupil is recorded by W. G. Spiller; [7] while Saloa [8] puts on record what he believes to have been an instance of hysteric spontaneous subconjunctival hemorrhage occurring in a healthy young woman positively not a bleeder.

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[1] Trans. Am. Oph. Soc., 1899.

[2] Med. News, Nov. 11, 1899.

[3] Annales d'Oculist, Nov., 1899.

[4] Jour. Nerv. and Men. Dis., Dec., 1898.

[5] Oph. Rec., Sept., 1899.

[6] Oph. Rec., May, 1899.

[7] Annales d'Oculist, Oct., 1898.

[8] Jour. Nerv. and Men. Dis., June, 1899.

Unusual Diseases.—Among the unusual diseases in which the eye may participate are erythema nodosum, mentioned by Schneider [9]; leprosy, which, according to Jeauselme and Morax,[10] spares none of the ocular tissues; and diffuse hyperostosis, recorded by F. W. Ellis,[11] as bringing in its train exophthalmos and optic atrophy.

Central Nervous System.—Bearing on the relation of spinal injuries to ocular symptoms, D. Roy[12] says observation teaches that such symptoms as do appear in the eye after injury to the spine are purely subjective and also very transitory. H. Pfister[13] studied the pupillary phenomena in 293 children of both sexes, and found that the average pupillary width increased steadily after the first month of life: rapidly at first, later on, more gradually. By the sixth year the size of the pupil is that generally seen in adults, and sex seems to make no special difference. The development of the different pupillary reflexes in the order of their evolution was: (1) Light reflex; (2) corneal reflex; (3) nictitation reflex; (4) sensory skin reflex; (5) auditory or acoustic reflex, first noticed about the tenth week of life, and present in about 50% of all cases. The same author[1] indulges in a most comprehensive talk on the diagnostic characteristics of the pupil. [It is impossible to do justice to this article in abstract, but it is well worth the careful study of all ophthalmologists.] The study of the pupils of 40 general paralytics and 16 other cases resembling general paralysis, by W. R. Dolson and D. H. Rambaut,[2] shows that the sensory or sympathetic is the most commonly affected pupillary reflex; that the light reflex is next in order of involvement—the consensual being oftener affected than the direct reflex; that the associated reflex (Argyll Robertson pupil) is very seldom completely abolished (5 times out of 56) and relatively seldom impaired; and that pupillary inequality occurs in 9 out of 10 of all such cases. In a rather hurried search through the literature W. Reber[3] found mention of one-sided Argyll Robertson pupil 53 times, although this anomaly has been considered rather rare. He reports 2 cases coming under his own observation, and is inclined to believe that the condition is due to a disturbance in the fourth ventricle—either an obliterating endocarditis or a slow sclerosis. As a résumé of a wide study of exophthalmic goiter, F. Allard[4] concludes that the combination of galvanism and faradism gives the best results —*e. g.* (*a*) galvanism of the neck; (*b*) carotid faradism; (*c*) precordial faradism; (*d*) periocular faradism. The treatment will often occupy several months. The following eye-symptoms were observed by W. M. Leszynsky[5] in a case of acromegaly occurring in a policeman 36 years old: Argyll Robertson pupil, Wernicke's reaction, temporal hemianopia for colors, and bilateral partial optic atrophy. Among other eye-symptoms occurring in this affection Leszynsky mentions exophthalmos and oculomotor paralysis. Of all the special-sense organs, says Harlow Brooks,[6] the eye suffers oftenest in acromegaly. Depending on the amount and area of pressure on the chiasm, we have various degrees of optic neuritis, narrowing of the visual fields, exophthalmos, and, in some extreme cases, complete blindness. In one of Brooks' cases W. A. Holden[7] found the chiasm flattened out, both anteroposteriorly and laterally, into a thin mass about 2.5 cm. square, with degeneration of its fibers. It was remarkable that, notwithstanding the great and unusual distortion of the chiasm, there should have been so little disturbance of the optic fibers and of vision. In a lengthy paper on tumors of the brain with special reference to disturbances of vision O. B. Wingate[1] gives as classic symptoms persistent headache, cerebral vomit, and double optic neuritis. Other less frequent symptoms are vertigo, convulsive movements, sleeplessness, changed disposition, and decreased mental power. Optic neuritis appears earlier and is more constant in tumors situated in the cerebellum, the corpora quadrigemina, and the basal ganglia than in the cortex. Vertigo usually occurs independent of vomiting, but is easily excited by sudden change of position. [This paper is a masterly consideration of this whole subject.] Intense double optic neuritis with marked swelling and retinal change coming on quickly means cerebellar tumor, according to Gunn,[2] while one-sided optic neuritis points to cerebral tumor probably on the same side as the neuritis. J. Hinshelwood records 5 cases of word-blindness and letter-blindness. The fact of the existence of these two classes of cases demonstrates the independence of the visual memory for letters and words, and this can only be explained by the assumption of different but probably contiguous areas in the cortex. Individuals who read words by analyzing them into letters necessarily become blind to words if they become blind to letters. By practice, visual memories of words are stored up as symbols suggesting a particular idea. M. Mohr's case[3] of amaurotic family idiocy is the thirty-fifth on record, and the fourth on which a postmortem examination of the eyes was made. To this group Cross-Guyla[4] adds case 36, typical in all respects.

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[1] J. Ner. and Men. Dis., Aug., 1899.
[2] Am. Jour. Med. Sci., Jan., 1899.
[3] Univ. Med. Mag., June, 1899.
[4] Clinique, July 15, 1898.
[5] Gaz. Med. de Mex., Jan. 1, 1899.
[6] Anales de Optalmologia, March, 1899.
[7] Phila. Med. Jour., Jan. 14, 1899.
[8] Annales d'Oculist, March, 1899.
[9] Rec. d'Ophtal., July, 1899.
[10] Annales d'Oculist, Nov., 1898.
[11] Knapp's Arch., July, 1899.
[12] Phila. Med. Jour., Nov. 12, 1898.
[13] Arch. f. Kinderheilk., parts I and II, 1899.

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[1] Deut. med. Zeit., April 13, 1899.

[2] Brit. Med. Jour., Sept. 10, 1898.

[3] Jour. Nerv. and Ment. Dis., May, 1899.

[4] Jour. Oph., Otology, Laryn., April, 1899.

[5] Phila. Med. Jour., Aug. 7, 1899.

[6] Arch. Neurol. and Psychiat., vol. i., No. 4.

[7] Ibid.

EYE AND NOSE.

Influence of Pharyngeal Adenoids.—Coppez'[5] experience supports Snellen's observation that follicular conjunctivitis is frequently associated with postnasal adenoids, and that their removal not only hastens the cure of the conjunctival trouble, but is often absolutely essential to it. An extreme instance of this relation is shown by Thomas'[6] case of a child of 10 with divergent strabismus and mental disturbance following meningitis during infancy. After curetage of the nasopharynx for adenoids, the strabismus entirely disappeared.

J. Hern[7] details, at some length, the eye-symptoms in so-called hay-fever—namely, itching, hot eyes, edematous conjunctiva, and more or less photophobia. He has seen relief follow the use of boric acid solution with spirits of nitrous ether—2 drams to 6 ounces of the boric solution. Devereux Marshall[8] warns against resorting to cocain in these conditions, believing that the cocain-habit may thus be induced.

Nasal Iritis.—Lefrancois[9] reports the case of a woman with serous iritis in whom, after 6 weeks of unavailing treatment, it was discovered that the corresponding naris was completely stopped with thick, caseous, fetid products, the removal of which brought about rapid disappearance of the iritis.

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[1] Annals of Ophthal., July, 1899.
[2] Brain, Winter, 1898.
[3] Gyogyaszat, March 19, 1899.
[4] Ibid., March 26, 1899.
[5] Arch. d'Ophtal., Jan., 1899.
[6] Presse Med., Oct. 29, 1898.
[7] Brit. Med. Jour., Sept. 23, 1899.
[8] Ibid.
[9] Rec. d'Ophtal., March, 1899.

Accessory Sinuses.—A. Knapp's[1] case of chronic empyema of the frontal and ethmoid sinuses is similar to de Schweinitz'[2] case. By entering through the orbit and draining through the nose, prompt recovery was secured. Among the uncommon ocular symptoms of disease of the ethmoid sinus R. L. Sattler[3] mentions persistent fistula in and about the region of the tear-sac; concealed internal burrowing of the contents of the choked sinuses, and emptying of the same, not into the nose, but into the adjacent maxillary sinus; finally, persistent neuralgia of the nasociliary and supraorbital region. Mucocele of the ethmoid cells, producing marked prolapse with some immobility of the globe, occurring in a girl 13 years old, the patient of F. C. Hotz,[4] was entirely cured by operation and drainage through the nasal passages.

EYE AND TEETH.

Sariguer[5] tells of a young man with a corneal ulcer, in whom extraction of an unhealthy canine tooth spontaneously cured the ulcer after several months' treatment with all the usual remedies. According to LaGleize,[6] caries and alveolar periostitis of the superior molars may give rise to conjunctivitis, keratitis, glaucoma, paralysis of accommodation, mydriasis, strabismus, neuralgia, photophobia, amblyopia, and amaurosis. To the above, Bull[7] adds muscular insufficiency, lagophthalmos, orbital cellulitis, and exophthalmos. He also says that neuralgia of the upper teeth is by no means infrequent in iritis and cyclitis, and that toothache has been more than once noted as one of the prodromes of glaucoma. [The latter statement comes to us as absolutely new.] Fatal septic thrombosis of the cavernous sinus following extraction of one of the back molars is reported by W. E. Bruner.[8] The patient presented all the symptoms of metastatic orbital abscess, along with general septicemia, of which he died 3 weeks after the tooth was pulled.

LIDS.

Congenital Anomalies.—F. Geismar[9] has seen congenital coloboma of the lids 4 times in children under 4 years of age. He accepts the theory of Van Duyse, who ascribes the defect to amniotic adhesions occurring in utero.

Blepharitis.—For blepharitis marginalis H. Moulton[10] applies to the lid-margins 1 to 2% solutions of formaldehyd daily, following this with almond oil. [This seems to us heroic, for we have seen terrific irritation follow the use of a $\frac{1}{20}$ % solution in the conjunctiva.] Raehlmann[1] considers that the demodex folliculorum in all stages of development (eggs, embryos, larvas, and adults of both sexes) is responsible for certain apparently intractable cases of blepharitis. Microscopic examination of the cilia is essential to the diagnosis.

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[1] Knapp's Arch. Ophthal., Jan., 1899.

[2] See Index.

[3] Ophthal. Rec., Aug., 1899.

[4] Jour. Am. Med. Asso., Apr. 1, 1899.

[5] Rev. Med. d'Seville, No. 6, 1899.

[6] Arch. d'Ophtal., March, 1899.

[7] Am. Medicosurg. Bull., Sept. 10, 1898.

[8] Oph. Rec., July, 1899.

[9] Beit. z. Augenh., Jan., 1899.

[10] Med. News, Dec. 10, 1898.

Pseudochalazion.—H. Mohr[2] relates a case of chancre of the lid which in the beginning looked so much like a stye that it was so diagnosed at first, as was also the growth which C. A. Veasey[3] dissected out under the impression that it was simply a chalazion, only to discover under the microscope that it was a nonpigmented spindle-celled sarcoma.

Ptosis.—A most complete consideration of all the possible phases and relations of ptosis is given in Wilbrand and Saenger's monograph.[4] There is nothing like it in all literature. Motet[5] believes that ptosis can be corrected by utilizing the synergy between the levator palpebræ and the superior rectus muscle. He cuts a strip in the superior rectus and pulls it through a buttonhole in the tarsal cartilage to suture it to the upper lid. Heckel's[6] device for holding up a fallen lid is merely a bent gold wire that can be soldered to any spectacle-frame. Its elasticity, permitting the surgeon to make the final adjustment, enables the patient to not only wink, but also to close, the eye. Schoute[7] says that if cocain widens the interpalpebral fissure to any extent, it is reasonable to assume sufficient activity on the part of the lid muscles to justify the attempt to correct ptosis by operation; otherwise the attempt should not be made. Reber[8] recites 2 case-histories of emphysema of the lids following fracture of the inner orbital wall from a fist blow. The 2 histories are of interest in that such a fracture should be produced by a fist blow, in that there was no complication, and in that the emphysema was limited to the lids.

Trichiasis.—Malgat[9] remarks that while electrolysis does not always permanently cure trichiasis, he prefers it for old people because it is efficient, almost painless, and avoids serious operations requiring a general anesthesia. In total cicatricial symblepharon of the upper lid precluding the wearing of an artificial eye, F. C. Hotz[10] makes incisions creating a new sulcus, covers the raw surfaces with a Thiersch's skin graft, and keeps the latter in contact with the raw surface by means of a thin plate, shaped like an artificial eye; after insertion of which he temporarily sutures the lids for a day or two. He reports excellent results.

New Growths.—Myles Standish's[11] 2 cases of typical lymphoma of the lids in elderly people belong in all probability to the pseudoplasms of Panas.[12] In one of the cases the tumor disappeared entirely, under increasing doses of Fowler's solution in 6 weeks, after several operations had been done for removal. Fibroma of the lid, occurring in a syphilitic 40 years old, is briefly reported by C. A. Oliver.[1] K. Scott [2] gives the full details in a case of what was, in all probability, tertiary ulceration of the lids, while Norris' case,[3] which presented the signs in the lid of a late, even tertiary, affection, seems to be an undoubted secondary and perhaps a primary lesion.

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[1] Klin. Mon. f. Augenh., Feb., 1899.

[2] Ung. Med. Presse, Feb. 9, 1899.

[3] Trans. Amer. Ophthal. Soc., 1899.

[4] Die Neurologie des Auges, Part 1, 1899.

[5] Caz. Med. de Paris, Nov. 12, 1898.

[6] Phila. Penn. Med. Jour., Sept., 1899.

[7] Abst. Annals Ophthal., Oct., 1899.

[8] Oph. Rec., Nov., 1899.

[9] Rec. d'Ophtal., Aug., 1899.

[10] Oph. Rec., Nov., 1899.

[11] Annals of Ophthal., July, 1899.

[12] YEAR BOOK, 1897.

CONJUNCTIVA.

Bacteriology.—C. A. Veasey's[4] investigations concerning the bacteriology of acute catarrhal conjunctivitis convince him that for Philadelphia and vicinity by far the most frequent cause of acute catarrhal conjunctivitis is the pneumococcus of Fraenkel; that occasionally it is produced by the Koch-Weeks bacillus, and that the clinical manifestations of both are similar in severe cases; that it is practically impossible to distinguish between them without a bacteriologic examination. His experiments fully corroborate those of Gifford as to the contagious character of the disease and its reproduction with anaërobic cultures. The disease is met with more frequently in young adults, although it may occur at any age. For the subacute forms of catarrhal conjunctivitis Wakefield [5] employs the following: Zinc sulphate, gr. ½; ammonium muriate, gr. ½; peppermint water, 2 dr.; rose water, add sufficient to make 1 oz.; of which 2 or 3 drops are instilled 2 or 3 times daily. Failing with this he everts the lids and brushes them 3 times weekly with ½ gr. to the oz. solution of silver nitrate.

Phlyctenular Conjunctivitis.—The bacteriologic study of 18 cases of phlyctenular conjunctivitis convinces Michel [6] that this disorder is a parasitic affection, and parasitic only, the unhealthy condition of the patient acting merely as the predisposing cause. Phlyctenules may be viewed as a "reactive lesion of the organ against microbes that have invaded the cornea or conjunctiva."

Membranous Conjunctivitis.—Croupous conjunctivitis has proved quite amenable in Samek's hands [7] to carbolic acid, 1 part; cocain muriate, 0.03 part; pure glycerin, 30 parts; to be brushed over the everted lids. [In the few cases of membranous conjunctivitis that have come under our own observation nothing has equaled the action of potassium chlorate solutions, 5 gr. to the ounce, as first suggested by Knapp.]

For the diphtheric phase of membranous conjunctivitis Vian [8] prefers crude oil of petroleum applied to the conjunctiva of the lids 3 times daily. Two cases under his observation made a rapid recovery under this treatment. C. P. Pinckard [9] reports the case of a young farmer in whom diphtheric conjunctivitis appeared following the entrance of floor-dust into his left eye. There were accompanying enlargement of the cervical glands and febrile disturbance, and even after the injection of 4000 units of antitoxin one day and 2000 the next day, there was no reaction until 3 days later. Full recovery followed. There were absolutely no nasal or pharyngeal symptoms during the entire disturbance. Pinckard points out that the xerosis bacillus, which is present in many conjunctivas, cannot be distinguished from the Klebs-Loeffler bacillus by the microscope or by any staining methods, and that only by injecting the secretion into guinea pigs can the true differential diagnosis be made. A case of diphtheric conjunctivitis similar in all respects to Pinckard's case was studied by G. H. Bell [1] in a 2-year-old child. There were no nose or throat symptoms. Eleven hundred units of antitoxin were used 3 days after appearance of the trouble, and 900 more a day later. The second injection cleared away all evidence of the membrane.

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[1] Ophthal. Rec., June, 1899.
[2] Brit. Med. Jour., Sept. 23, 1899.
[3] Amer. Jour. Ophthal., Dec., 1899.
[4] Knapp's Arch., No. 3, 1899.
[5] Med. Rec., Feb. 25, 1899.
[6] Annals d'Oculist, Oct., 1898.
[7] Med. Rec., July 9, 1898.
[8] Rec. d'Ophtal., July, 1899.
[9] J. Am. Med. Assoc., May 27, 1899.

Vernal Catarrh.—In this disease, which has proved so rebellious in many hands, E. Bock [2] claims to have seen astonishing improvement following the use of powdered xeroform in 3 cases.

Purulent Conjunctivitis of the Newborn.—According to Janeson,[3] the prophylaxis of purulent conjunctivitis of the newborn is resolvable into 3 stages—before, at the time of, and after the birth of, the child. Believing in Credé's method, he does not subscribe to the objection that it may induce conjunctivitis and keratitis. De Schweinitz[4] believes that Credé's method should be reserved for the eyes of those children in whom infection is either a known fact or a strong probability. When these facts can be excluded, minor prophylactic measures are sufficient, in which opinion he is joined by Wilson.[5] A. Pechin [6] strongly disapproves of Credé's measures, feeling that the silver nitrate often causes loss of the corneal epithelium and permanent corneal scars. De Wecker,[7] on the other hand, believes that the exterior of the infant's lids receives the poison which is afterward worked into the eyes by the attendants or the child itself. He therefore advises strict antisepsis of the lids and disinfection of the parturient canal in preference to prophylactic medication of the conjunctiva. Chacos,[8] of Mexico City, is of the same opinion. E. S. Peck [9] finds that in the management of purulent conjunctivitis in the newborn protargol and argonin are both superior to silver nitrate, effecting quicker destruction of the gonococci with earlier disappearance of secretion and inflammation. This is also the experience of E. Praun,[10] who has used protargol in 8 cases of such conjunctivitis. He states that all that silver nitrate can do in purulent conjunctivitis is better and more quickly done by protargol. In a 5-year-old child, the subject of double purulent conjunctivitis, Ross [11] saw arthritis of both knee-joints which, though somewhat modified by local

[1] Medical Record, June 10, 1899.

[2] Centralb. f. prak. Augenh., July, 1899.

[3] Med. Rec., March 4, 1899.

[4] Phila. Med. Jour., Feb. 18, 1899.

[5] Phila. Med. Jour., Feb. 11, 1899.

[6] Rec. d'Ophtal., Oct., 1898.

[7] La Clin. Ophtal., No. 1, 1899.

[8] Ibid.

[9] Med. News, Jan. 21, 1889.

[10] Centralb. f. Augenh., June, 1899.

[11] Brit. Med. Jour., Feb. 4, 1899.

treatment, only disappeared completely when the eye-trouble had been cured. Santos Fernandez [1] seems to show that purulent conjunctivitis of the newborn is not so serious in the hotter countries of America (at least in Spanish America) as it is in Europe. An interesting instance of bona fide purulent conjunctivitis in the newborn arising from the presence in the conjunctival sac of the bacterium coli commune is recorded by Bietti.[2]

Purulent Conjunctivitis in the Adult.—Vail [3] very properly points out that but a small percentage of cases of purulent conjunctivitis are specific, and that for diagnostic and scientific reasons microscopic examination of the discharge should always be made. Vian [4] reports a case in which he used a 1 : 10 solution of potassium permanganate, checking the disease in the right eye in 9 days and in the left eye in 3 days [the liability of this agent to break down the corneal cement-substance is always to be borne in mind]. H. D. Jamison [5] believes that by early and thorough application of a silver nitrate solution (40 gr. to the oz.), combined with the operation of cantholysis, many of these cases may be aborted.

Trachoma.—E. F. Snydacker [6] has shown conclusively that the organism of trachoma produces specific toxins, which cause local and systemic effects. To their action are probably due the disastrous local effects so familiar to oculists. Snydacker further shows that the body produces antidotes to these toxins, though the field invaded is so small that the constitutional effects are hardly appreciable. The doctrine of the unity of trachoma and follicular conjunctivitis is again advanced, this time by O. Walter,[7] who believes that regions said to be free from trachoma are becoming rarer and rarer, and that these should be described as abounding in malignant and benign forms of disease, much as we speak of similar variations in malarial districts.

Ziem [8] is more or less in accord with the preceding view in contending that excessive heat, dust, vapor, and swamp air, by involving the upper respiratory tract, induce trachoma. He further holds that one-sided trachoma really means nasal disease on the same side, and that the purely local treatment of trachoma without proper nasal treatment is of little avail. A 10% solution of salicylic acid in 60% alcohol is recommended by Moty [9] in the minor forms of granular conjunctivitis. [The use of 60% alcohol as a vehicle should be deprecated, as it certainly seems too strong in any but the most formidable phases of this disease.] Bloebaum[10] has had good results in all stages of trachoma from the following ointment: Copper sulphate, salicylic acid, cocain muriate, each, 1 part; vaselin, 100 parts. The best medicinal agent in Galezowski's [11] hands has been the mitigated silver stick. Failing with this, he resects the affected portions of the conjunctiva. Nesnamoff's[1] preference is for iodin in ½ to 1% glycerin solution or liquid vaselin. J. W. Smith's[2] treatment is mechanical. He claims that with his own forceps the granules are perfectly emptied without undue injury to the healthy parts. A wide experience convinces Kuhnt[3] that 50% of all cases of epidemic trachoma will show no relapse after thorough expression, with preservation of all healthy areas in the conjunctiva. G. H. Powers'[4] experience was unique: Two days after rolling a pair of lids, a stiff, diphtheric-like membrane formed on their conjunctival aspect, accompanied with intense swelling and corneal involvement. An injection of 500 cc. of antitoxin entirely dissipated the inflammation in 24 hours. Vitzos[5] states that trachoma invades the tarsus, and that intervention that does not reach this part of the eyelid is often futile. Proceeding from the fact that a copper needle attached to the positive pole of a battery will have formed around it copper oxychlorid, G. F. Keiper[6] employs such a needle in the treatment of trachoma. No statistics are given. Arnold Lawson[7] reports two instances of relapsing trachoma in which all the conjunctival symptoms disappeared after correction of a very high mixed astigmatism. He believes the relapses were due to the conjunctival congestion brought about by the continual eyestrain necessary in such patients for the performance of any and all near work.

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[1] Gazetta Medica d'Mexico, June 1, 1899.

[2] Klin. Monats. f. Augenh., Sept., 1899.

[3] Med. Rec., Feb. 25, 1899.

[4] Rec. d'Ophtal., Aug., 1899.

[5] Med. Rec., June 10, 1899.

[6] Jour. Am. Med. Assn., May 6, 1899.

[7] Knapp's Arch., July, 1899.

[8] Annals of Otol., Rhin., and Laryn., Feb., 1899.

[9] La Presse Med., Dec. 24, 1898.

[10] Deut. med. Zeit., Jan. 23, 1899.

[11] Rec. d'Ophtal., Jan., 1899.

Bizarre Forms.—J. A. Pratt[8] reports two cases of pronounced conjunctivitis and keratitis after the temporary use of cocain for minor operations. Koster[9] also calls attention to the vicious effects following prolonged use of cocain. W. H. Fox[10] details fully the symptoms following a blinding flash from a short circuited 500-volt current. The symptoms came on suddenly at midnight 9 hours after the flash. There were marked photophobia, pain, and pin-point pupils. Hot applications and cocain locally and potassium bromid internally relieved the patient in an hour, and there were no further symptoms. Fox believes that the light-rays do the damage. S. P. Eagleton[11] speaks of one of his medical friends who, while vaccinating the arm of a patient, received a portion of the broken virus tube in his right eye. Three days later he showed a pretty well-marked vaccine vesicle 2 mm. to the outer side of the limbus of the right eye. It disappeared quickly after puncture and hot borax applications. The case is of unusual interest in that the doctor had tried repeatedly to vaccinate himself during the previous four months (because of an epidemic of mild smallpox) and had been unsuccessful each time. [The conjunctival infection was due, in all probability, to the congenial soil offered the virus.]

Hemorrhage.—A case of fatal hemorrhage of the conjunctiva of a full-term newborn child is reported by A. J. Abbe.[12] The child was poorly nourished, and weighed 5 pounds. Swelling of the lids a few hours after birth led the nurse to wash the lids thoroughly, and instil a drop of a 6 % silver nitrate solution in each eye. Six hours later there was bloody oozing from the conjunctivas of both eyes, which developed into steady trickling of blood. Within 36 hours the child died, supposedly from exhausting loss of blood.

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[1] Med. News, April 29, 1899.

[2] Jour. Am. Med. Assn., Feb. 18, 1899.

[3] Zeit. f. Augenh., Jan., 1899.

[4] Pacific Med. Jour., Nov., 1898.

[5] Annals d'Oculist, April, 1899.

[6] Phila. Med. Jour., June 24, 1899.

[7] Brit. Med. Jour., Sept. 23, 1899.

[8] J. Eye, Ear, Throat Dis., July, 1899.

[9] Tr. Netherlands Op. Soc., Dec., 1898.

[10] Jour. Am. Med. Assn., Oct. 7, 1899.

[11] Oph. Rec., July, 1899.

[12] Annals d'Ophtal., Jan., 1899.

New Growths.—Vignes[1] had a patient with violent purulent conjunctivitis of the left eye and painful swelling of the preauricular and cervical glands. There was a coincident ulceration of the conjunctiva, which Vignes considered a chancre. Its disappearance in 20 days under calomel insufflations shows the correctness of his diagnosis. Two other cases of primary sore of the conjunctiva reported during the year again illustrate how the physician should be on the lookout for a primary lesion in the most out-of-the-way place. In Ellett's[2] case the patient, a man [illegible] years old, showed typical roseola and general adenopathy [illegible] weeks after the appearance of the eye-trouble. In A. Barkan's[3] case the sore appeared on the bulbar conjunctiva. C. Grunert[4] cites the case of a [illegible]-year-old printer, never seriously ill, but a thoroughly catarrhal subject. There was slight evidence of apical tuberculosis 3 years before the appearance of tuberculous nodules in the conjunctiva of the left eye. Six months after their removal there was no evidence of any tendency to recur. According to M. Vicasse,[5] tuberculosis may present itself as an ulcer, an infiltration, or a polypus. Treatment requires removal of the whole of the affected conjunctiva, followed by cauterization. In C. Goy's[6] case of cyst of the conjunctiva the growth extended from the lower corneal margin-tip back into the inferior sulcus, producing great deformity of the lower lid. The patient was a woman of all work, [illegible] years old. Goy believes the cyst originated in a [illegible] occurring during fetal life. W. H. Wilder's[7] case of conjunctival cyst, studied in a boy 11 years old, was perhaps a cysto-epithelioma like that of Best,[8] whose case proved, under the microscope, to be a cystoepithelioma. He collects the literature of 12 cases under [illegible], and states that unless they are congenital they will generally prove malignant. There were no special symptoms in the [illegible] of the conjunctiva reported by J. W. Heustis.[9] The removal was done under cocain, and the tumor, which was of true [illegible] mm. Heustis could find but 3 similar [illegible]. F. Zimmerman[10] describes fully the unique condition of hemorrhagic lymphectasia of the conjunctiva almost surrounding the [illegible] an annular zone 11 mm. wide. The connection between the [illegible] and the lymph stream of the conjunctiva had [illegible]. New growths situated in the retrotarsal folds [illegible]. J. Griffith[11] removed from the right upper conjunctival fornix of a woman of 45 a lobulated tumor, occupying the greater part of the upper culdesac, from which it projected in a prominent manner when the lid was everted. On removal, the microscope showed the growth to be a pigmented sarcoma.

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[1] [illegible] 1899.

[2] [illegible] 1899.

[3] [illegible] 1899.

[4] [illegible] April, 1899.

[5] [illegible] 1899.

[6] [illegible] Med. Jour., Sept. 23, 1899.

[7] Oph. Rec., June, 1899.

[8] Knapp's Arch., Sept., 1899.

[9] Beit. z. Augenh., April, 1899.

[10] Beit. z. Augenh., Jan., 1899.

[11] Beit. z. Augenh., Jan., 1899.

LACRIMAL APPARATUS.

Diseases of the Sac.—N. Cahn [1] tries hard to show that lacrimal diseases are more often mechanical than nasal in origin. [While a certain proportion of diseases of the sac and duct are truly mechanical in origin, the vast majority of American surgeons believe in the necessity for nasal treatment before a final cure of the lacrimal disorder can be affected.] He is enthusiastic over argonin in 4 % to 6 % solutions. When pus disappears from the secretion, 2 % solutions are used until recovery. In scrofulous cases he washes out the sac with 0.25 % to 0.5 % glycerol of iodin every other day. In specially rebellious cases, and fistulous ones in particular, he employs a tight pressure-bandage. C. F. Keiper [2] claims that purulent inflammation of the sac and duct yields better to the cataphoric use of silver nitrate or protargol than any of the older methods. Cupped probes containing the remedy are introduced in the regular way, and then connected with the positive pole of the battery. The patient's hand holds the negative electrode, while from 3 to 5 milliamperes of current are used for 5 minutes. Jocqs[3] ascribes dacryocystitis in infants to an imperforate condition of the lower end of the lacrimal duct. If the inflammation becomes purulent by the third day, it may be mistaken for purulent conjunctivitis in the newborn. He does not believe in probing, but resorts to vigorous injection of weak antiseptic fluids. J. Thorington [4] cites a case in which a blow on the eye produced sufficient obstruction of the duct to render an operation necessary.

Extirpation of the Sac.—An experience covering 52 extirpations of the lacrimal sac has made E. Hertel [5] very favorable toward this procedure in all rebellious lacrimal cases. He discountenances forcible dilation with large probes, but is equally sure that gentle and careful probing with moderate sized probes, not too often repeated, is beneficial. C. Holmes [6] has done extirpation of the sac 19 times for purulent dacryocystitis, and secured primary union in all but one case. He is persuaded that with strict asepsis the danger of infection can be entirely set aside. Indications for the operation are: (1) When the time is too short to carry out other treatment; (2) when the patient's time or endurance will not permit probing; (3) when conservative treatment has failed. General anesthesia is recommended. The indications and technic laid down for this operation by E. R. Williams [7] and Aronis [8] agree, in the main, with those of Holmes and Hertel.

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[1] Beit. z. Augenh., April, 1899.

[2] Ophthal. Rec., May, 1899.

[3] La Clin. Ophtal., May, 1899.

[4] Jour. Am. Med. Assn., April, 1899.

[5] Graefe's Arch. f. Ophth., vol. xl., No. 1.

[6] Knapp's Arch. Ophth., Jan., 1899.

[7] Bost. Med. and Surg. Jour., Feb. 22, 1899.

[8] Annales d'Oculist, March, 1899.

CORNEA.

Normal Corneal Opacities.—By focusing intense light accurately upon its superficial layers, H. Gifford[1] demonstrates what he terms normal opacities of the cornea, which consist of innumerable discrete small opacities more or less irregular in shape, with rather curved borders. He thinks they represent the so-called corneal corpuscles. Congenital opacity of the cornea has come twice within the experience of F. G. Murphy,[2] forcing him to the conviction that such conditions are due to arrest of development. [This is in line with our own belief. See Reber, Corneal Opacities, Year Book for 1898.] E. Roubiceck[3] declares that acquired luetic keratitis is always one-sided, while the hereditary form involves both eyes. Specific remedies he says exert no influence over the hereditary form, but are of marked benefit in acquired syphilis. E. Gault[4] reports 3 cases of interstitial keratitis occurring during the course of acquired lues, but, unfortunately, does not state whether the affection involved one or both eyes. S. Schultze's[5] case offers additional evidence that parenchymatous keratitis is not so frequently specific as was formerly supposed. In a young man who was otherwise perfectly healthy he found this disorder associated with tuberculous iritis which, after 6 weeks of treatment, compelled enucleation of the globe. The microscopic diagnosis was "unmistakable tuberculous keratitis." Schultze's statement is amply supported by the findings of W. Diez,[6] who traced 53% of his cases of parenchymatous keratitis to tuberculosis, and in only 34% was hereditary syphilis the true cause.

Malaria.—A very interesting series of 10 cases of malarial keratitis is recorded by E. C. Ellett,[7] in each of which thorough blood-estimations and blood-counts were made, showing the plasmodium every time. The disease, as he observed it, corresponds exactly to Kipp's first description of it. Ellett found the disease invariably limited to one eye, of variable duration, and of good prognosis.

Ulcer.—A. Schultz,[8] after an experience with 221 cases of serpiginous ulcer of the cornea, adopts the following treatment: Chlorin water as a collyrium; atropin freely; moist heat; moist corrosive sublimate dressings; attention to lacrimal passages; cauterization of the infiltrated area when the ulcer spreads; opening of the anterior chamber for hypopyon; and staining with fluorescein. [This measure, which Schultz mentions last, is almost invariably the first one adopted by American surgeons.] Of the 221 cases, medicinal treatment was used in 94, operation in 127. Of the 94 medical cases, 82 recovered; in 102 cases cauterization controlled the spread of the ulcer 92 times. For serpiginous ulcer J. F. Woodward[9] uses orthoform, 5 gr., to lanolin, 1 dr. Percy Dunn[10] asserts that chinosol and eserin are both valuable

[1] Oph. Rec., March, 1899.

[2] Oph. Rec., March, 1899.

[3] Wien. klin. Rundschau, No. 35, 36, 1899.

[4] Intercolonial M. Jour., May 20, 1899.

[5] Knapp's Arch., July, 1899.

[6] Zeit. f. Augenh., vol. i., No. 5.

[7] Oph. Rec., March, 1899.

[8] Knapp's Arch., Sept., 1899.

[9] Oph. Rec., Jan., 1899.

[10] The Lancet, Oct. 22, 1898.

in the treatment of corneal ulcers, the first as a powerful antiseptic, the latter for its effect on infective and vascular ulcers. J. S. Johnson[1] speaks in high terms of the efficacy of a 10% dilution of chemically pure nitric acid as a cauterant to corneal ulcers, claiming that it is safe and sure in its action. Moreover, eserin shuts off light from the retina, and by lowering the tension favors the healing process. To hasten the resorption of corneal opacities after ulcer Vehmeyer[2] is particularly fond of massage practised for 15 minutes, 2 or 3 times daily, through the closed lids.

Results of Phlyctenular Keratitis.—Bass[3] reports another case of psychic blindness following the blepharospasm of phlyctenular keratitis in a child of 2.

Blood Staining of the Cornea.—F. C. Hotz[4] describes a case of blood staining of the cornea appearing spontaneously. [T. Collins has recorded 9 cases, in all of which, however, injury preceded the staining.] No blood-corpuscles were found, and it is believed that only the coloring-matter of the blood penetrated the corneal layers.

Unusual Diseases.—Sloughing of the cornea from neuroparalytic keratitis following fracture of the base of the skull is recorded by Lediard.[5] In this connection E. V. Grosz[6] says that neuroparalytic keratitis, or the keratitis suppurativa observed in animals after section of the fifth nerve, and in man after wounds, compression, pathologic alterations, resection, and following facial paralysis, may be referred to the same cause, be it the conjunctival or lacrimal sac, or infection by contact. Its development is favored by desiccation of the cornea consequent upon anesthesia and its insufficient protection. The cause may be sought in the ciliary ganglion, beginning as a degeneration of the ganglion cells provoked by cachexia, by local hemorrhage, or by wounds. During the year 3 cases of herpes of the cornea have been put on record. In Flemming's[7] case the condition followed a burn of the face. In Pfingst's[8] case the cornea showed 4 or 5 very delicate, superficial, but sharply defined vesicles following in the train of facial neuritis; while Koster's[9] patient presented the picture of parenchymatous keratitis, and differed further from the usual condition in that no well-defined vesicles appeared on the cornea. Saemisch[10] reports a rare eye-condition: The lesion resembled a zone of keratitis, but failed entirely to respond to the usual treatment. Citrine ointment loosened an acarus (a female with 8 eggs), which was removed. There were no cutaneous signs of scabies. [Pediculosis ciliarum is by no means rare, but that the itch-bug should not only reach the cornea but establish itself there is certainly unique.]

Tumors.—F. Lagrange[11] has seen what he considers an instance of primary tumor of the cornea [although Alt and other histologists doubt very much the existence of primary new growths in this tissue].

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[1] Amer. Jour. of Ophthal., July, 1899.
[2] Münch. med. Woch., Dec. 20, 1898.
[3] M. Med., Jan. 24, 1899.
[4] Jour. Am. M. Assn., June 17, 1899.
[5] The Lancet, May 20, 1899.
[6] La Clin. Ophtal., Oct. 10, 1899.
[7] The Lancet, March 4, 1899.
[8] Oph. Rec., May, 1899.
[9] Weekb. v. h. Nederl. Tydsch. v. Geneerk., March 4, 1899.
[10] Presse Med., May 6, 1899.
[11] Arch. d'Ophtal., April, 1899.

LENS.

Varieties of Cataract.—The interchange of fluids in the lens, says L. Stricker,[1] is entirely chemic and perfectly passive, being completely separated from the influence of blood-vessels or nerves, the only factors which would influence this condition being temperature and electric action. According to Ryerson,[2] lightning, when it strikes close enough, may set up various eye-troubles without affecting the general health to any extent. Chief among these affections are changes in the lens leading to cataract, although the prognosis is not unfavorable, as extraction may be successfully done in many cases. Cataract in an infant from pressure with an obstetric forceps is put on record by E. S. Peck.[3] The trauma was also severe enough to diminish ocular tension and probably detach the retina, but strangely enough the cataract absorbed spontaneously, and useful vision was restored. In 3 cases of diabetic cataract R. L. Randolph [4] was uniformly successful in restoring vision. He believes, with Deutschmann, that the condition is due to breaking down or death of the lens-cells similar to what occurs in the kidney epithelium, and considers the evidence as showing quite clearly that diabetes is no serious contraindication to the extraction of cataract. Toro [5] very frankly confesses that he did not make the diagnosis of black cataract in the case which fell under his observation until after the extraction (!). A. W. Wheatley [6] speaks of a woman under his care for some years for neuroretinitis and subsequent partial optic atrophy in her right eye. The left eye had been previously the seat of a violent plastic iritis. Five years later cataract extraction was done unsuccessfully on the right eye, and five years afterward extraction of the left lens gave her $V = \frac{5}{9}$. [This serves to show what can sometimes be done in what seem like hopeless cases.]

Operative Methods.—The most important conclusion deduced by E. F. Neve,[7] from his experience in 750 cases of cataract-extraction, is that "as an all-round operation von Graefe's linear extraction with iridectomy is the most suitable and, in the long run, gives the best average results." C. C. Boyle,[8] on the other hand, pronounces in favor of the simple method, basing his statement on 53 successful extractions out of 60 senile cataracts. [Boyle's statistics show a loss of 11% of cases, which is entirely too high to give much weight to his statement in this day and generation.] C. F. Clark,[9] from a study of postoperative astigmatism in 30 cases of cataract, is inclined to believe that less astigmatism follows cataract-extraction after preliminary iridectomy than after simple extraction; but that the average visual result is much better after simple extraction, notwithstanding the higher residual astigmatism.

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[1] Annals Ophthal., Oct., 1899.

[2] Med. Rec., April 22, 1899.

[3] St. Louis M. and S. Jour., April, 1899.

[4] Ophthal. Rec., April, 1899.

[5] Annales Med. d'Cadiz, No. 7, 1899.

[6] West London Med. Jour., Oct., 1899.

[7] Indian Med. Rec., Oct. 1, 1898.

[8] Jr. Oph., Otol., and Lar., Jan., 1899.

[9] Annals Ophthal., Oct., 1899.

Accidents of Extraction.—In dealing with prolapse of the iris F. C. Heath [1] believes that it is best to let the iris alone at the time of the accident, as in many cases the tissue will replace itself and render any operation unnecessary. Among queer postoperative accidents, R. L. Randolph [2] mentions expulsive intraocular hemorrhage occurring 3 days after a preliminary iridectomy for cataract. Subsequently, there was marked atrophy of the globe. In 5 months glaucoma developed in the other eye, and advanced steadily on to blindness in spite of thorough treatment. Randolph draws the just conclusion that the same process was at work in the first eye, although in a milder form, at the time of the iridectomy. A. R. Baker [3] reports a somewhat similar case in which both eyes were lost by choroidal hemorrhage after cataract-extraction. Vian [4] reports 2 instances of suppurative iritis after cataract-extraction, in both of which mercurial inunctions promptly cleared up the anterior chamber and brought about perfect healing. [We have accomplished the same thing twice with fractional doses of calomel, frequently repeated for 24 hours.] In extractions that are complicated or, for any reason, promise difficulty in operation Risley [5] advises the use of the Kalt stitch, which he has found of great service in 3 such cases. Knapp [6] feels that when, from lack of vitality or any other cause, the eye collapses in such way as to prevent the corneal wound from healing properly, the injection of a sterile physiologic salt solution into the anterior chamber, or even into the vitreous, is justifiable. He has had success in 3 such attempts. D. del Castillo [7] has had 2 cases of acute mania following cataract-extraction, each time occurring some time after removal of the bandage. Both cases made a perfect final recovery. In a woman 73 years old, who had been the subject of intraocular hemorrhage after cataract-extraction from her right eye Valude [8] did what might be termed posterior reclination, passing his needle through the sclera and, after engaging the lens on its point, depressing it back and down into the vitreous. Six weeks later the eye was perfectly quiet, and the visual result good. [Valude should be congratulated. This is a most fortunate result in what are generally viewed as almost hopeless cases.] J. Ramos [9] chronicles the spontaneous luxation of a cataract in a priest 58 years old, to which S. Fernandez [10] adds 4 similar histories of luxation after head-injuries of varying degrees of violence. Schmidt-Rimpler [11] adds 2 more cases to those mentioned in literature, of partial spontaneous resorption of cataracts. In all the cases recorded the lenticular opacity had been of many years' standing. The absorption began in the cortex and advanced until a part of the pupil became clear, so that useful vision was given by a strong convex spherical lens.

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[1] Am. Jour. Oph., Aug., 1899.
[2] Am. Oph. Soc., 1899.
[3] Annals Ophthal., Oct., 1899.
[4] Rec. d'Ophtal., June, 1899.
[5] Jour. Am. Med. Assn., April, 1899.
[6] Knapp's Arch. Ophthal., May, 1899.
[7] El Sig. Med. de Madrid, Feb., 1899.
[8] Ann. d'Oculist, Jan., 1899.
[9] Gazetta Med. de Mex., Feb. 10, 1899.
[10] Cron. Med. Quir. de la Habana, Feb., 1899.
[11] Berliner klin. Woch., Oct. 31, 1898.

Secondary Cataract.—Believing that the most important points in capsulotomy are perfect illumination, position of corneal puncture, and a sharp knife, H. B. Chandler[1] has had constructed an electric light of adjustable focal distance, to which can be attached either a pair of fixation forceps or a knife-needle. This affords the surgeon perfect illumination entirely under his own control. His preference is for knife-needles. F. Buller[2] uses a double-pronged instrument with 2 exceedingly sharp parallel needles with which he fixes the capsule and then introduces and passes between them another needle. The advantages claimed are large aperture without traction on the zonule, and consequent slight reaction. In a series of 141 extractions J. M. Ray[3] notes 2.84% of immediate failures. Of the 141 cases, 53 presented themselves later for secondary operation, of which 3.77% were lost. If vision after preliminary operation equals $\frac{6}{36}$ and the fundus details are visible, Ray discountenances all secondary operations.

IRIS.

Anatomy and Congenital Anomalies.—From extensive experiments on rabbits' eyes, Andogski[4] concludes that ganglion cells are entirely wanting in the iris itself—*i. e.*, in the course of its nerves and the region of the sphincter. Those who have described such cells as existing in the iris have mistaken for ganglion cells either the triangular nuclei or the branched stroma cells of the iris. In the case of congenital aniridia reported by F. Tiffany,[5] the iris was represented by a narrow rim of tissue (at the ciliary border), ragged, serrated, and showing no circular fibers. Thorington's case of coloboma of the iris and choroid occurred in a woman 18 years old, in whom there was no ancestral history of such defect. The lenses escaped the malformation.

Iritis.—From 55% to 65% of all cases of iritis, says H. H. Brown,[6] are due to syphilis, while a proportion varying from 10% to 20% may be credited to arthritic toxins. The remaining percentage arises from various constitutional and infective disorders, with a strong probability of the occasional existence of a true sympathetic or neurotic iritis entirely distinct in origin from any infectious process whatever. There is a wide range for speculation as to the intimate nature of iris-infections, but at the present time the facts point to the action of germal products or toxins rather than to the germs themselves. In only a few affections have characteristic bacteria been found in the iris-tissue; in others only the ordinary pus cocci are present to point to what is probably a secondary infection. In 1500 syphilitics examined at the Hot Springs of Arkansas, R. Brunson[7] found iritis 48 times,—that is, 3% of cases, while among 1500 rheumatics similarly examined he found iritis 29 times—1½% of all cases. He gives an admirable table for the differential diagnosis of rheumatic from syphilitic iritis, and records his conviction that chorioretinitis is a frequent complication of the rheumatic variety. Among the outlying causes mentioned by Brown is malaria, which Pechin [1] found operative in both eyes, producing broad posterior synechias that were broken up only with great difficulty. There was no lesion of the fundus in either eye. Mazet [2] has seen two cases of rebellious iritis heal rapidly after curetment of the uterus for a coexisting endometritis. In the matter of treatment W. L. Pyle [3] advises tridaily instillation of a 4 % solution of atropin sulphate. [This is nearly 20 gr. to the oz., which certainly seems stronger than is necessary for any but extreme cases. It is likely that the author meant 4 gr. to the oz., the conventional solution.] As a sequel of iritis Risley [4] reports a case in which, although there were no demonstrable adhesions back of the iris, the latter was paralyzed in its lower portion. In discussing Risley's paper de Schweinitz [5] spoke of having seen a similar condition.

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[1] Ophthal. Rec., Sept., 1899.

[2] Trans. Am. Oph. Soc., 1899.

[3] Ophthal. Rec., Aug., 1899.

[4] Knapp's Arch. Ophthal., Sept., 1899.

[5] Jour. Am. Med. Assn., Apr. 22, 1899.

[6] Annals of Ophthal., April, 1899.

[7] Oph. Rec., Nov., 1899.

Tumors.—According to A. Alt,[6] who has made exhaustive studies into the structure of the ciliary bodies, adenoma of this tissue is characterized by agglomerations of the cells of the ciliary retina forming glandular tubules, between which lies an amorphous substance covered by pigment epithelium and the retina.

CHOROID.

Uric Acid.—R. Brunson [7] thinks too little attention has been allotted uric acid as a factor in the causation of choroiditis. Extended study of many obscure cases has led him to free administration of the salicylates and hot bathing as practised at the Hot Springs of Arkansas, which in such cases he has found acts "like magic." He records a number of cures under this treatment that had resisted all specific measures. Darier [8] reaffirms his belief in the efficacy of large subconjunctival injections of 1 : 5000 solutions of mercuric cyanid in the treatment of macular choroiditis, while R. Burri,[9] who has seen improvement in 7 cases after subconjunctival injections, gives the preference to salt solutions ranging in strength from 2 % to 10 %. Addario[10] approves of sublimate injections under the conjunctiva in acute infective choroiditis, which they cure rapidly, but finds them of no service in the chronic form.

Tubercle.—S. H. Eddington [11] speaks of having seen acute tuberculous choroiditis unfold its features in a 3-year-old boy some time after he had been under surgical treatment for a tuberculous synovitis of the knee and elbow. As but 4 days intervened between the surgical treatment and the appearance of the choroidal trouble, Eddington concluded that he was dealing with the stirring up of a chronic condition rather than with an acute dissemination.

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[1] Rec. d'Ophtal., July, 1899.

[2] Annales d'Oculist, Nov., 1899.

[3] International Med. Mag., Nov., 1898.

[4] Jour. Amer. Med. Assn., Apr. 1, 1899.

[5] Ibid

[6] Amer. Jour. Ophthal., Nov. and Dec., 1898.

[7] Jour. Am. Med. Assn., March 2,1899.

[8] La Clin. Ophtal., March 10, 1899.

[9] Zeit. f. Augenh., vol. i., No. 1.

[10] Rev. Gen. d'Ophtal., Dec. 31, 1898.

[11] The Lancet, Feb. 11, 1899.

New Growths.—W. M. Carhart[1] reports an instance of primary leukosarcoma of the choroid occurring in a 4-year-old boy. On removal, the tumor was seen to be breaking through the sclera into the orbit. No tendency to recurrence in the orbit nor no metastases had shown themselves 6 months after operation. The diagnosis was confirmed with the microscope. At the time of the operation the child's life was in jeopardy. Cases of sarcoma of the choroid come to report from time to time, but their infrequency is well shown by Jarnatowski's statement,[2] that out of 92,000 patients seen in one of the large continental clinics, but 32 cases of choroidal sarcoma had been observed. Lopez and Carvallo[3] report successful enucleation of an eye containing a leukosarcoma. The patient was a man 42 years old.

SYMPATHETIC OPHTHALMIA.

In a discussion on the pathologic significance of sympathetic irritation and its connection, if any, with sympathetic ophthalmitis, F. Richardson Cross[4] reviews the subject of sympathetic irritation and its connection with sympathetic ophthalmia, discussing the symptoms, causes, pathology, prognosis, and complications, and advising as good practice the removal of the eyeball, thus doing away with any possible source of mischief. As regards the pathology, he holds that neither the reflex neurosis nor the microbic theory is sufficient. There is a possibility that, with future and more perfect research, various kinds of microbes will be found, implicating, if not actually causing, sympathetic complications. He thinks we should work carefully in the direction, by seeing whether any general infection of the system is coincident with septic uveitis. Landolt[5] quite agreed with Cross' conclusions, as did also McHardy.[6] C. D. Marshall[7] found many facts in the way of accepting Deutschmann's theory, while de Schweinitz[8] argued for a more thorough examination of patients with sympathetic ophthalmitis,—*e. g.*, examination of the blood for leukocytosis, of the temperature-range, etc.,—feeling that such methods might afford materials for differential diagnosis. R. Sattler[9] says enucleation of an injured eye when active sympathetic ophthalmia of the fellow eye has been excited is not justifiable, for the reason that after subsidence of the inflammatory reaction in both eyes, the injured eye may offer the only chance for partial restoration of sight. Enucleation of an exciting injured eye is justifiable when the injury has been inflicted by a foreign body which cannot be localized. Enucleation of the injured eye in the hope that it will influence favorably the progress of sympathetic ophthalmia has little or no foundation in clinical observation or surgical experience.

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[1] Ophthal. Rec., Jan., 1899.
[2] Archiv f. Augenh., March, 1899.
[3] Rec. d'Ophtal., June, 1899.
[4] Brit. Med. Jour., Sept. 23, 1899.
[5] Ibid.
[6] Ibid.
[7] Ibid.
[8] Ibid.
[9] Oph. Rec., July, 1899.

GLAUCOMA.

General Considerations.—Th. Leber,[1] discussing questions concerning the nutrition of the cornea, crystalline lens, and vitreous, says: "Not only must the transparency of these mediums be preserved, but also their constant unalterability in form, since they constitute the optic apparatus; the secretion of liquids is in constant relation to the difference which exists between the intraocular pressure and the blood-pressure. The mediums have no blood-vessels of their own, and depend for nutrition on filtration of substance through the walls of the blood-vessels and probably through the epithelium of the ciliary processes. The ciliary processes are secretory organs themselves; the posterior surface of the iris does not contribute to the supply of nutritive substances, since in cases of congenital aniridia tension is normal. Excretion is accomplished by filtration through the venous circle of the uveal tract, through the central canal in the vitreous and perivascular spaces of the central vessels, and through the filtration angle in the anterior chamber; some is lost by evaporation from the anterior surface of the cornea. In short, the three mediums are supplied by simple diffusion by way of the intercellular substance, and by penetration into the lens-capsule and membrane of Descemet. The cornea depends largely upon the circle of vessels surrounding it, but the liquid in the anterior chamber is of some importance as a source of nourishment.

In an analysis of so-called chronic glaucoma based upon a study of 63 glaucomatous eyes and an examination of 184 charts of the visual field, de Schweinitz[2] discusses the subject under the following headings: (1) The commonly described visual-field phenomena or the so-called typical form of contraction; (2) the horizontal hemianopic visual field; (3) the various atypical contractions of the visual field to which the following names were given: the acorn field, the dumb-bell field, the angle field, and the kite-shaped field; (4) the various forms of scotoma; (5) sentient islands within the darkened areas; and (6) the color-fields. He points out that although it is commonly stated that the nasal field is earliest and more severely affected, this is by no means the rule. The average of all his observations yielded a visual field with the following dimensions: Outward, 56; upward, 26; inward, 25; and downward, 37 degrees. In other words, a field which was concentrically restricted and not especially restricted on the nasal side. Although it is commonly stated that in glaucoma the color-fields present a restriction corresponding with that of the form-fields, de Schweinitz' observations led him to believe that this could not be regarded as a differential test from simple atrophy, inasmuch as frequently the color-field is correspondingly much more contracted than the form-field. His observations led him to believe that in all cases careful study of the field would usually demonstrate a scotoma in some portion of it, and he felt that a study of these scotomas would be more profitable as a method of differentiating this disease from optic atrophy than the color-field, as they might also have some relation to the prognosis of operative interference. Thompson[1] referred to the unsatisfactory results so often accompanying operative interference in simple glaucoma, and said that we could count no one who labors under this disease happy until he is dead. Connor[2] spoke of the importance of carefully correcting even the small errors of refraction in these cases, and of giving attention to the conditions of defective assimilation which so often exist at the same time. Smith[3] referred to the difficulties of an early diagnosis in this disease, and stated that the tension of the eye frequently varies if taken at different periods of the day—for instance, in the morning there may be no tension and in the afternoon a tension of plus 1. In operating he preferred sclerotomy to iridectomy. Tiffany[4] stated that he believed the glaucomatous condition was becoming much more rare since we have been giving such careful attention to refraction.

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[1] La. Clin. Ophtal., Oct. 10, 1899.

[2] Annals Ophthal., Oct., 1899.

Hydrophthalmos.—J. M. Ball[5] reports 2 cases of hydrophthalmos, the first of which was congenital and occurred in a girl 10 years old, and the second being of traumatic origin in a girl 15 years old. W. L. Pyle[6] ranges all such conditions in 2 classes—(1) True hydrophthalmos, depending upon congenital defective development of the cornea, iris, and filtration channels; (2) hydrophthalmos secondary to fetal intraocular inflammations usually in the form of iridokeratitis or iridocyclitis, causing closure or obstruction of the iridic angle and the filtration channels. He believes the prognosis of early operation is far more favorable than the textbooks lead us to believe. If the condition is recognized in the first few months of infancy and does not respond to medical treatment, paracentesis should be tried, failing with which a broad iridectomy should be done on the poorer eye. The earlier the operation, the better will be the result. Miotics should invariably follow the operation. In cases giving evidence of useful near vision, with or without operation, an attempt at correction of the refraction (generally myopia) by retinoscopy and ophthalmometry (with confirmation with the test-lenses, if possible) is strongly advised.

Etiology.—S. O. Richey[7] insists that chronic simple glaucoma is due to venous stasis of constitutional origin. While acute glaucoma may depend upon obstruction of the large veins by pressure as a cause of stasis (and is, therefore, more temporary and does not recur), in chronic glaucoma stagnation proceeds from slowly increased thickening of the intima, or is due to a development of hyaline tissue. In the absence of tumultuous features time is given for a new growth of connective tissue in the bulb, with subsequent contraction as a result of venous stasis with edema. [This is the idea put forth by Richey 4 years ago as to the interstitial nature of glaucoma, wherein he offered, in lieu of chronic simple glaucoma, the term interstitial ophthalmia. That there appears to be some ground for his contention is evident from his treatment based on this idea, for which see below.] S. D. Risley [1] has seen glaucoma 3 years after successful simple cataract-extraction (and 2½ years after the secondary operation) in a woman of 77. The glaucoma followed in the wake of influenza, and was of the marked inflammatory type. Vigorous antirheumatic treatment with massage restored the eye promptly to its functions; but recurrence of the glaucoma 6 months afterward induced the patient to submit to iridectomy, which gave her permanent relief. Galezowski [2] does not accept the German idea that glaucoma is in reality a serous choroiditis, but views it more as the end-manifestation of obliteration of the lymph-vessels, which, according as it is partial or total, slow or rapid, determines the variety of the glaucoma. He describes a new form, recalling the atrophy of tabes, with which it is frequently confounded, though it does not often exhibit the characteristic excavation. He contends that in this variety of glaucoma, as well as in simple glaucoma, iridectomy is ineffectual, and should give way to anterior sclerotomy, which promises more. In addition to the 2 essential anatomic changes in glaucoma (formation of the excavation with angular curvature of the optic-nerve fibers and alterations in the ora serrata following too prolonged muscular contractions) Schoen [3] describes a third lesion, which he characterizes as atrophy of the ciliary muscle. C. S. Bull [4] holds that disease of the blood-vessel walls probably furnishes the connection between retinitis albuminurica and secondary glaucoma. Two nearly constant symptoms are cardiac hypertrophy with doubling of the first heart-sound, and certain cerebral phenomena. C. H. Hogg [5] ascribes some cases of acute glaucoma that came under his observation to constant irritation of the eye with accumulations from a long-continued lacrimal stricture and repeated wipings of the eyes. Dengue is given as a cause by J. L. Gibson,[6] while the remarks of Despagnet, Parinaud, and Jocqs [7] show that attacks of acute glaucoma may be brought on by la grippe in persons predisposed to glaucoma. B. L. Milliken [8] reports a most extraordinary instance of spontaneous rupture of the eyeball in a case of old glaucoma: the rupture was nearly vertical through the center of the cornea from the lower margin of the pupil upward into the sclera.

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[1] Ibid.
[2] Ibid.
[3] Ibid.
[4] Ibid.
[5] St. Louis Med. and Surg. J., Jan., 1899.
[6] Phila. Mon. Med. Jour., April, 1899.
[7] Phila. Mon. Med. Jour., July, 1899.

Treatment.—[The fact that glaucoma is regarded as almost incurable lends no little interest to the reports during the year as to the efficiency of massage by 3 Americans, and the benefits of excision of the cervical sympathetic by 3 foreigners and 1 American.] As to massage, G. M. Gould [9] reports 4 cases of glaucoma in which, for several years, the tension and vision have been kept normal by firm massage through the closed lids, with the finger-tips, 3 to 5 minutes 3 times daily.

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[1] Phila. Med. Jour., Trans. Sec. Oph., Coll. Phys., Phila., Oct. 28, 1899.

[2] Rev. Gen. d'Ophtal., Jan. 31, 1899.

[3] IX. Cong. Inter. Oph., La Clin. Ophtal., Oct. 10, 1899.

[4] Trans. Am. Oph. Soc., 1899.

[5] Australas. Med. Mag., Oct. 20, 1898.

[6] Ibid., Oct. 20, 1899.

[7] Gaz. Heb., Nov. 24, 1898.

[8] Am. Jour. Oph., Aug., 1899.

[9] Phila. Mon. Med. Jour., Oct., 1899.

S. O. Richey[1] claims that the reduced capacity of the vorticose and central veins, as the local agency in glaucoma, is strongly suggested by the therapeutic effect of taxis in reducing increased intraocular tension, and offers 3 striking clinical histories (one an acute inflammatory glaucoma) in support of his contention. J. A. Pratt[2] relieved all the glaucomatous symptoms in a colored man by massaging the corneoscleral junction with a firm, even stroke (20 times) with the back of a hard-rubber cataract spoon. Notwithstanding the use of eserin and hot applications at the patient's home the symptoms all returned in 10 days, only to be promptly dissipated by renewed massage, showing that the benefit received was not due to the drug, but to the massage.

Domec[3] reports 2 new cases of cure after ocular massage—one of simple glaucoma and the other a chronic inflammatory glaucoma. His method is to press with the thumb, through the upper lid, upon the cornea in a direction tangent to the limbus, resting the fingers upon the temple of the same side. In hyperopes, and when the tension is low, he recommends moderate and uniform pressure by a series of rubbings, each of short duration. From time to time increased pressure may be exercised (provided the patient experiences no pain), the duration to average 5 minutes, and to be repeated several times in a day, or less frequently. In myopes, and in those with higher tension, greater pressure may be applied. In general, the lower the tension the softer the pressure.

Murphy's[4] report of glaucoma leading to blindness in a man 54 years old, who had permitted golden time to slip away by wearing glasses furnished him by an optician, is a pitiful commentary on the laxity of medical laws that permit such malpractice to be carried on day after day throughout our whole country.

Excision of the Cervical Ganglion.—Abadie[5] again champions his vasodilation theory as to the origin of glaucoma, and continues to recommend resection of the sympathetic for the cure of the simple chronic form of the disease. In W. Zimmermann's[6] case resection of the sympathetic was done at the patient's request after all other measures (paracentesis and iridectomy) had been tried in vain. When the resection was done, the pupil contracted almost to a pinpoint, and remained very small for 2 or 3 days. The tension fell immediately from + 2½ to much below the normal. There was no perceptible effect on the heart. A few hours after the operation slight enophthalmos and ptosis of the left eye developed. The second day the tension rose to —½, and on the third day the enophthalmos disappeared, while the ptosis remained. Vision on the operated side rose slowly but steadily to $\frac{4}{10}$, permitting the reading of the 0.50 type with difficulty. The tension remained permanently at —½. Demecheri,[7] also, has observed marked improvement following this operation in 2 cases, and J. M. Ball, E. C. Renaud, and W. Bartlett[8] report what they believe to be the first resection of the sympathetic done in America. Relief from pain was immediate, and the tension steadily decreased to +1.

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[1] Phila. Mon. Med. Jour., July, 1899.

[2] Phila. Med. Jour., Dec. 17, 1898.

[3] La Clin. Ophtal., Oct. 10, 1899.

[4] Phila. Med. Jour., March 18, 1899.

[5] Arch. d'Ophtal., Feb., 1899.

[6] Ophthal. Klinik, No. 14, 1899.

[7] Annales d'Oculist, March, 1899.

[8] N. Y. Med. Jour., July, 1899.

RETINA.

By looking at a clear sky through a piece of dark-blue glass, Norton[1] found it very easy to see the capillary circulation in his own retina, and points out the difference between this phenomenon and muscæ volitantes.

Color-blindness.—A statistical study of 308,919 cases of color-blindness embracing both sexes and including statistics from England, France, Russia, United States, Sweden, Denmark, China, and Japan, shows that 1.82% of the men and 1.01% of the women had subnormal color-perception. D. S. Reynolds[2] holds that examinations of the color-sense at less than 1 meter's distance are totally unreliable. He believes that the subjects of inherited blood-taints, as well as those who inherit derangements of the digestive organs or central nervous system, also all hypochondriacs are more or less predisposed to subnormal color-perception. Acute color-blindness in 2 14-year-old girls, following snow-blindness, is fully described by A. J. Erwin.[3] Full color-perception was regained after galvanism and strychnin.

Transferred Perceptions.—Graefe[4] gives full details of a case of color-hearing. The patient on hearing any one of the vowels pronounced separately claimed to see a certain color which was invariably associated with the same vowel. In the case reported several members of the family were painters of note, and the patient himself had artistic tastes.

Embolism.—Story[5] has twice observed recovery of sight after temporary occlusion of the central artery by an embolus, and Königshöfer speaks of having seen the formation of an anastomosis between two retinal arteries in another case of embolism. In Osterwalt's[6] case the blocking of the artery was secondary to injury of aortic valves, while C. Zimmerman's[7] case shows how thrombosis of a branch of the central retinal artery may simulate embolism. C. A. Wood[8] warns against ascribing too much of the improvement that often follows embolus to the treatment, for "not a few cases of partial and even of total embolism have recovered without any treatment at all." Iridectomy, sclerotomy, and paracentesis may assist by suddenly lowering the intraocular tension and thus increasing the caliber of the obstructed vessel. Massage is of doubtful value.

Albuminuric Retinitis.—In contrasting the exudative and degenerative phases of albuminuric retinitis S. West[9] points out that the degenerative form is usually found with granular kidney, the exudative especially with parenchymatous nephritis. The exudative variety is generally inflammatory and often toxic in origin; the degenerative, consequent on vascular change. Sight may often be recovered in the exudative form; but usually goes on from bad to worse in the degenerative variety. As to prognosis, while both indicate a grave renal condition which will in all probability sooner or later prove fatal, degenerative retinitis points to widespread vascular changes that may easily usher in death by intercurrent apoplexy before the renal lesion gradually progresses to the same result. J. F. McCaws [1] justly insists that "the general practitioner is very apt to attach too little importance to the warning symptoms of this disease, and to value them too lightly in determining whether gestation shall be allowed to progress." He states that statistics show 23½% of albuminuric retinitis of pregnancy to have terminated in blindness, 58% in partial recovery of sight, and only 18½% in full recovery. He concludes that when retinitis appears before the sixth month of pregnancy, artificial induction of labor should be recommended. Action after the sixth month will be determined by the amount and severity of the retinitis and its rapidity of progress. Albuminuric retinitis occurring at the twelfth year is rather unusual. Lawson and Sutherland [2] mention this condition associated with symptoms of chronic interstitial nephritis, which latter lesion they rather thought was due to congenital syphilis. Albuminuric retinitis, says W. L. Pyle,[3] not associated with especially severe general symptoms, is not a fatal sign so long as it remains unilateral.

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[1] Jour. Am. Med. Assn., July 15, 1899.
[2] Memphis Lancet, April, 1899.
[3] Oph. Rec., Jan., 1899.
[4] Rev. d'Med., p. 225, 1898.
[5] The Lancet, June 17, 1899.
[6] Rec. d'Ophtal., Feb., 1899.
[7] Knapp's Arch., July, 1899.
[8] Oph. Rec., June, 1899.
[9] Brit. Med. Jour., Oct. 28, 1899.

Diabetic Retinitis.—To the 50 odd cases of diabetic retinitis now on record H. O. Reik [4] adds 2 that conform in all particulars to the usual picture of this disease. Bremer's blood-test was positive in both instances.

Retinitis Pigmentosa.—Trantas [5] noted remarkable improvement in the vision and general condition of 10 hemeralopes after feeding with lamb's liver in amounts of 7 oz. daily. Hippocrates is known to have treated night-blindness by administration of ox liver in quantity. To the foregoing cases Hansell [6] adds another history of typical night-blindness. Riesman [7] thinks his case was probably of hysteric origin, because of reversal of the color-fields.

Gyrate Atrophy.—Fuchs [8] describes a progressive atrophy of the choroid, retina, and optic nerve, which he terms "gyrate atrophy." It differs from retinitis pigmentosa only in the manner in which the pigment is deposited, which in gyrate atrophy is more or less in zones. It falls in the same class with retinitis punctata albescens. All these degenerations begin in childhood or youth, with night-blindness as the first symptom, and go on slowly but uninterruptedly to atrophy of the retina and nerve. The close resemblance of retinitis circinata to tardy specific retinal disease is shown in the case reported by W. E. Bruner.[9]

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[1] Med. Rec., Jan. 28, 1899.
[2] The Lancet, March 18, 1899.
[3] Phila. Med. Jour., Nov. 19, 1898.
[4] Annals Oph., July, 1899.
[5] Ophthal. Klinik, No. 14, 1899.
[6] Jour. Am. Med. Assn., April 1, 1899.
[7] Jour. Am. Med. Assn., March 4, 1899.
[8] Graefe's Archiv., Sept., 1898.
[9] Annals of Oph., July, 1899.

Five years prior to the report the patient exhibited what appeared to be specific macular retinochoroiditis. Four years later all the symptoms of retinitis circinata presented in both eyes. (Fig. 89.) De Schweinitz [1] studied this condition in the left eye of a woman of 77, perfectly healthy in all other respects. The disease manifested itself in the form of a large, somewhat wreath-shaped, slightly raised, yellowish-white deposit surrounding the macular region and terminating some distance beyond it.

Retinal Detachment.—C. Horstmann's experience with retinal detachment [2] confirms the value of Samuelsohn's treatment—namely, diaphoresis, decubitus, and pressure-bandage for 3 or 4 weeks. Lodato [3] finds that sodium chlorid subconjunctivally in recent detachment produces more or less marked improvement, which practice de Wecker[4] also adheres to because of his belief in Raehlmann's view that detachment is due to disturbances in the exosmotic currents which pass through the retina. Recently, he has been carrying the injections right into Tenon's capsule, as they are less painful so done, and he prefers gelatin solutions made of white gelatin 3½ parts, physiologic salt solution 100 parts. While he has not cured all his cases, he has benefited them all. [Moreover, his method is harmless, which is no small matter.] Foster [5] prefers puncture of the sclera back of the detachment combined with diaphoresis and rest in bed; while Kopliff [6] has had his ideas as to therapy sadly shaken by a case of spontaneous cure that has been under his observation. Three or 4 years ago, R. Deutschmann [7] reported 16 cases of retinal detachment, all of which had been markedly

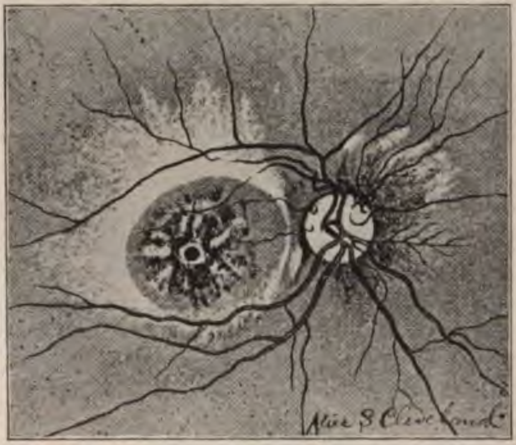

Fig. 89.—Bruner's case (Annals of Ophthal., July, 1899).

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[1] Am. Jour. Oph., Nov., 1899.
[2] Graefe's Archiv., Sept., 1898.
[3] Rev. Gen. d'Ophtal., Dec. 31, 1898.
[4] Ophthal. Klinik, June 20, 1899.
[5] Amer. Jour. Med. Sci., May 1, 1899.
[6] Rec. d'Ophtal., May, 1899.
[7] Beit. z. Augen., No. 40, 1899.

improved by severing the bands which connected the shrunken vitreous with the retina. This operation he has modified by plunging a double-edged Graefe knife into the subretinal space corresponding to the detachment, and carrying the knife obliquely through to the opposite side. (Fig. 90.) The eye should always be atropinized, and the puncture made as far as possible from the corneal border. He has further modified the operation for the injection of rabbit's vitreous, adapting to this purpose what he calls the "knife-cannula," consisting of a glass cannula to which is attached the previously mentioned double-edged knife. This treatment was reserved for eyes that had resisted all other means, and a goodly number were not only improved, but were cured. In comparison with other reported results, Deutschmann's showing, in 101 cases, of 26 cures, 34 improved, and 41 uninfluenced, is astonishing, and plainly indicates that no case should be dismissed without giving them the benefit of his ideas.

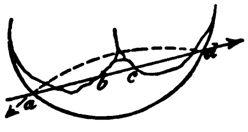

Fig. 90. — Line of puncture and counterpuncture in Deutschmann's operation (Beitr. zur Augenheilk., April, 1899).

VITREOUS.

Opacities.—J. A. Dunn[1] describes a perfect spider-web-like formation in the vitreous after absorption of an intraocular hemorrhage.

Cysts.—J. O. Tansley[2] describes a spheroid body about the diameter of the optic disc, which he observed floating in the vitreous. It was distinctly encapsulated and somewhat pigmented. Randall[3] thought it a cyst that had been set adrift through closure of the congenital cleft, while A. Alt suggested it might be an adenomatous tumor detached from the ciliary processes.

Parasites.—Two cases of intraocular cysticercus are recorded by Max Peschel.[4] The first occurred in a butcher, 16 years old, in whose right eye the parasite lay close behind the lens, notwithstanding which the whole globe was removed in order to secure the parasite. In the second case, a woman 42 years old, the worm lay subretinally in the lower portion of the eye, and was successfully extracted subconjunctivally without affecting the integrity of the eyeball. It is highly interesting to note that one month after the foregoing operation the woman was relieved of a tape-worm 4 yards long, and that her husband had been similarly affected 12 years before.

OPTIC NERVE.

Congenital Anomalies.—To the 10 cases of bilateral coloboma of the optic nerve already reported F. Hosch[5] adds another, observed in a girl of 18, who presented no other congenital anomalies. The

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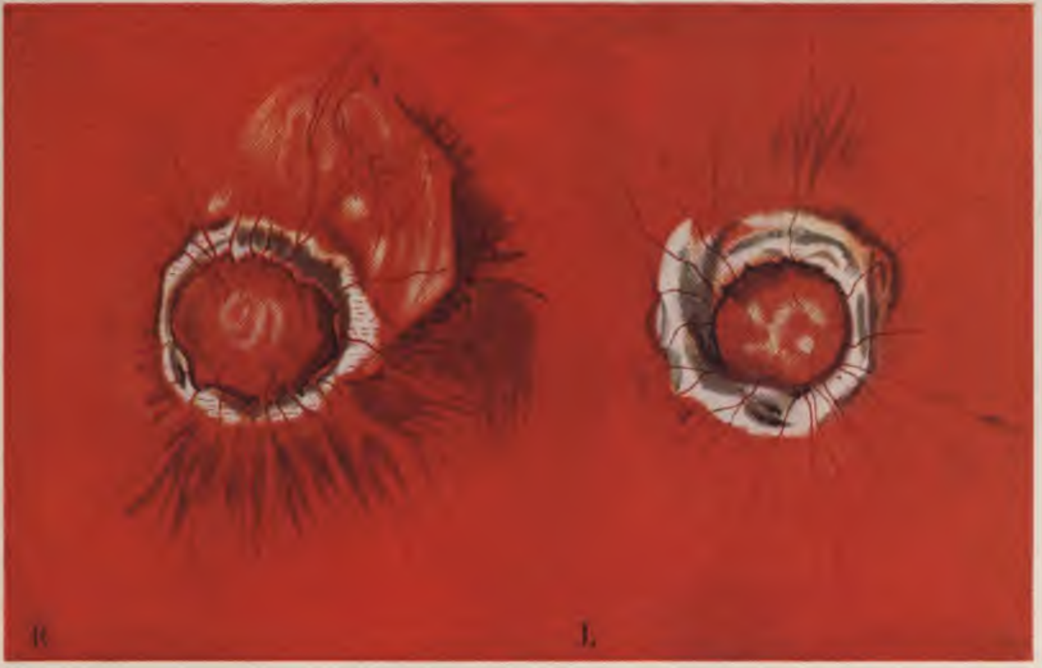
[1] Va. Med. Semi-monthly, Dec. 23, 1898. [2] Am. Jour. Ophthal., Aug., 1899.
[3] Ibid. [4] Beit. z. Aug., April, 1899.
[5] Knapp's Arch., July, 1899.

PLATE 7.



Coloboma of both optic nerves without coloboma of the uveal tract (Hosch). (Knapp's Archives of Ophthalmology. July, 1899.)

disc was enlarged, deeply excavated, surrounded by a broad scleral ring, and the retinal vessels had branched before they reached the bottom of the excavation, but radiated regularly from the bottom of the latter. This is the rarest variety of this anomaly. (See Plate 7.)

Toxic Blindness.—Blindness after severe hemorrhage from the stomach is reported by S. Theobald [1] occurring in a man 57 years old. Two days after the second hemorrhage his sight failed rapidly, and in 2 weeks he was practically blind. Theobald believes that thrombosis of the central retinal artery, due to backing of the blood-current by the intraocular tension, is the usual cause of blindness after profuse hemorrhage. A somewhat similar case is reported by William M. Sweet [2] after intestinal hemorrhage in a man of 68. One eye was completely blind, and in the other eye a small, quadrant-like sector of the field was (in all probability) preserved by a cilioretinal vessel supplying that portion of the retina. For the ordinary cases of amblyopia following hemorrhage Ward Holden [3] says we have found a sufficient explanation in the degeneration of the retinal ganglion cells from diminished nutrition. (Fig. 91.) The amblyopia due to the use of methyl alcohol also falls, in all likelihood, in the category of those amblyopias due to nutritive disturbances in the retinal ganglion cells. Holden further believes tabetic atrophy of the optic nerve to be due to degeneration of the peripheral visual neurons, secondary to disease of the retinal ganglion cells, and furnishes a diagram of the 2 visual neurons. (Fig. 92.) [Ascending degeneration.] Partial blindness

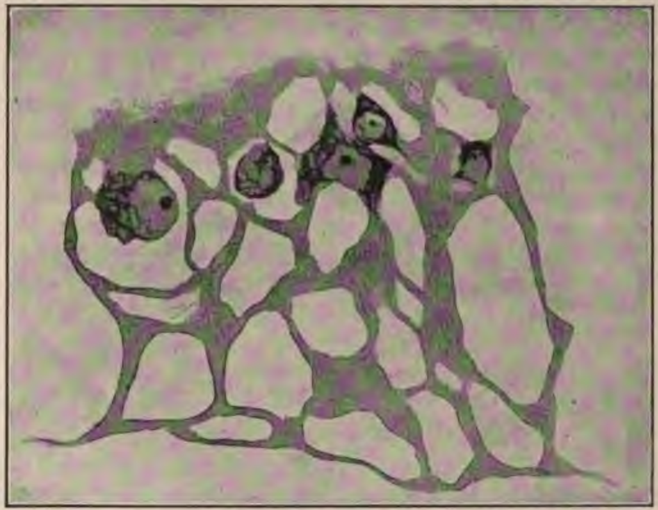


Fig. 91.—Ganglion-cell and nerve-fiber layers of retina after hemorrhage (Arch. of Ophth., March, 1899).

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[1] Johns Hopkins Hos. Bul., May, 1899. [2] Am. Jour. Oph., Nov., 1899. [3] Knapp's Arch., March, 1899.

from the ingestion of 120 grs. of quinin sulphate at one dose, leading to subsequent optic atrophy, is chronicled by M. T. Yarr.[1] Among the rarer symptoms of quinin amblyopia is annular scotoma. C. B. Camac [2] has seen this condition follow the ingestion of 36 grs. in 2 days. The scotoma was temporary. Another instance of this same disorder occurred in a boy 3 years old, who consumed 90 grs. in 5 days. When Moulton [3] saw the boy, he was perfectly blind. The pupils were dilated and immobile, the nerve-heads blank white, and the vessels practically obliterated. Under strychnin and Fowler's solution vision of about $\frac{5}{60}$ was recovered in 6 weeks. "The pathologic process in experimental quinin amblyopia," says W. A. Holden,[4] "consists in a constriction of the retinal arteries followed by a highly albuminous exudate into the nerve-fiber layer and a degeneration of the ganglion cells, together with their axis-cylinder processes." This degeneration is due both to the direct toxic action of quinin in constricting the retinal vessels and reducing their nutritive supply. Treatment by amyl nitrite and other nitrites, unless instituted in the first 24 hours, is of no avail. Grimsdale [5] puts down the danger-limit for the consumption of tobacco at one-quarter pound strong shag, smoked steadily for 25 years. He states that consumers of expensive tobaccos suffer less than those smoking the cheaper grades. Cubans and Turks seem to be immune.

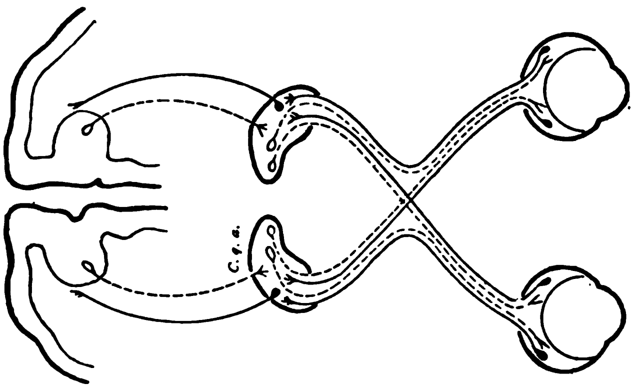

Fig. 92.—Diagram of the neurons of the visual tract (Arch. of Ophth., March, 1899).

Physiologic Scotoma.—From a study of the physiologic variation in the size of Mariotte's blind spot in 52 individuals (among whom were emmetropes, myopes, and hypermetropes), H. F. Hansell [6] concludes that the blind spot has a greater bearing than has been accorded it in investigating the visual field, and might, in the absence of a knowledge of its size, be mistaken for the scotoma of disease. The discovery of a blind spot in the visual field, between the 10° and 20° mark (and sometimes even including both) might easily lead to confusion in calculating the real character of the field.

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[1] Jour. Trop. Med., vol. i., No. 2.

[2] Med. Rec., Oct. 8, 1898.

[3] Oph. Rec., Aug., 1899.

[4] Arch. of Oph., Nov., 1898.

[5] Clin. Reporter, June, 1899.

[6] Amer. Jour. Ophthal., Nov., 1899.

Bizarre Toxic Amblyopias.—Three more cases of blindness following the intoxicating use of essence of Jamaica ginger (exactly similar to the one reported by A. G. Thomson) are put on record by H. Wood, Jr.[1] Perhaps the same pathology underlies the 4 cases of amblyopia after methyl-alcohol intoxication, one of which is reported by H. Moulton.[2] In commenting on the other 3 H. Gifford [3] also chronicles 4 deaths from overindulgence in methyl alcohol, from which he concludes it should always be labeled "Poison." The complete blindness in most of these cases points to a primary change in the retinal ganglion cells. L. D. Brose [4] cites the cases of two men who entered a well 2½ hours after an explosion of dynamite, and were overcome with the gases present. Both were unconscious when brought to the surface, one recovering in about 30, and the other in 38, hours. The first case presented a typical picture of toxic amblyopia, but soon regained full vision and memory. When the second man recovered consciousness, he was found to be blind and mentally very weak. The pupillary and other reflexes were normal, while the nerve-heads were characteristic of toxic amblyopia. Three months later he was still practically blind, showing vision of about $\frac{1}{60}$ in each eye. Dizziness and amaurosis are spoken of by Hornsberger [5] following some hours after 3 teaspoonful doses of the following: Potassium bromid, 1 oz.; fluid extract passion flower, 4½ dr.; water, 4 oz. The blindness disappeared a couple of days after the medicine had been given. Hornsberger says he has frequently used the same prescription, but has never before seen any such results follow its use. The peculiar association of hysteria with toxic amblyopia came under the observation of G. E. de Schweinitz.[6] The patient was a retired merchant, 45 years old, in good health barring a gastrointestinal catarrh. He was a moderate smoker, and in addition to classic central scotoma the patient had yellow vision in his right eye, the left eye to all scientific appearances being blind. Strangely enough, after the recovery of the right eye it was found that the patient was the subject of simulated monocular blindness of the left eye, and presented other stigmas of hysteria. Three cases of hereditary retrobulbar neuritis occurring in one family are reported by W. Strezeminski.[7]

Optic Neuritis.—In a girl 21 years old, who developed one-sided neuritis while under C. Higgins' [8] observation, 3 bad teeth were found on the same side and showed abscesses on removal. The development of brain symptoms in the case led to exploratory opening of the skull by Horsley, but nothing was found. Death followed soon after. Higgins ascribed the whole illness to the carious teeth. Trauma of the right supraorbital ridge and cheek was the cause of blindness in W. C. Bane's[1] case—a man 44 years old. There was absolutely no injury to the globe, seeing which Bane came to the conclusion that the blindness was due to orbital fracture at the optic foramen setting up optic neuritis at that point. The case reported by W. C. Posey[2] of a young man who received a severe blow over his left eye, is probably of similar pathology. Three days after the accident the eye was totally blind, the pupil stationary, the optic disc pale, with marked alterations in rhythm of the veins. There was full recovery of vision in 3 weeks. A very interesting case of double choked disc associated with quiet otitic thrombosis of the sigmoid sinus is described by C. A. Veasey.[3] The choking of the disc was more pronounced on the side opposite the lesion and, strangely enough, increased from day to day for 3 weeks after the mastoid was opened. The patient finally recovered useful vision.

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[1] Oph. Rec., Feb., 1899.

[2] Oph. Rec., July, 1899.

[3] Oph. Rec., Sept., 1899.

[4] Knapp's Arch., July, 1899.

[5] Med. News, Dec. 12, 1898.

[6] Oph. Rec., Jan., 1899.

[7] Annales d'Oculist, Feb., 1899.

[8] The Lancet, April 12, 1899.

Brain Tumors.—Gunn[4] states that double optic neuritis with much swelling and surrounding retinal change, sudden of onset, always suggests cerebellar tumor. One-sided optic neuritis, or marked prominence of the neuritis on one side, points to the cerebrum, and is probably suggestive of a tumor on the same side as the most intense neuritis. In a case of large tumor of the brain reported by J. M. Ball[5] about the only external symptom pointing at all to brain tumor was double optic neuritis.

Atrophy.—H. T. Patrick[6] estimates that as high as 10% or even 12% of cases of incipient tabes first seek the advice of a physician because of failure of vision due to atrophy of the optic nerve. Dodd[7] speaks of color-vision occurring in a typical case of amaurotic tabes in a man 32 years old. The man saw everything a bright emerald green. At times it appeared to him as if there was a light green veil before him through which he would occasionally see rose-pink spots. All the colors increased in intensity when he was tired, especially when he saw rose-pink. He also had occasional flashes of light. Segrist[8] reports two cases of optic atrophy following ligation of the common and internal carotid arteries. De Wecker[9] reaffirms his opposition to vigorous specific treatment in tabetic atrophy of the optic nerve, feeling that it only aggravates the process. He believes that tabes is rarely, if ever, truly specific, and that even if such cases do exist, his statement in regard to their therapy is none the less true.

Tumors.—A case of primary tumor of the optic nerve in which the diagnosis was confirmed with the microscope is described by F. Buller.[10] The patient was a boy of 6, who was otherwise perfectly sound, so that much obscurity surrounded the origin of the trouble. Secondary metastatic sarcoma has been found growing on the optic nerve-head in a man 50 years old by L. Heine.[11]

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[1] Oph. Rec., Jan., 1899.

[2] Phila. Med. Jour., Aug. 19, 1899.

[3] Oph. Rec., June, 1899.

[4] Brain, Winter, 1898.

[5] Phila. Med. Jour., Oct. 28, 1899.

[6] Medicine, Nov., 1899.

[7] The Lancet, March 18, 1899.

[8] Tr. of Heidelb. Oph. Soc., Aug., 1898.

[9] Annales d'Oculist, Feb. 9, 1899.

[10] Trans. Am. Oph. Soc., 1899.

[11] Klin. Monats. f. Aug., Sept., 1899.

ORBIT.

Foreign Bodies.—The 2 cases of unsuspected foreign body mentioned by E. Clark [1] show the importance of thoroughly investigating all possible causes in orbital injuries, even if there is no external wound to suggest such origin. Especially is such care necessary if there is any bulging of the eye or corneal sloughing. Fisher [2] speaks of enophthalmos developing 3 weeks after a slight wound of the upper right orbital margin. He believes that the enophthalmos was caused by a simple atrophy of the orbital fat, which occurred along with marked atrophy of all the muscles of the same side of the face.

New Growths.—The case reported by C. A. Wood [3] is of interest in that a new growth was found overlying the left external rectus of a child 5 months old. It was incompletely encapsulated and proved microscopically to be a true lipoma. The case of pseudoleukoma of the conjunctival and orbital tissues described by Berl[4] may or may not have been a lymphosarcoma, but certainly seems to fall in the class pseudoplasms, described by Panas.[5]

INJURIES TO THE GLOBE, AND OPERATIONS.

Asepsis and Antisepsis.—H. Gifford[6] is convinced, by 200 bacteriologic experiments, that ordinary methods fail to rid the conjunctival sac of germs, some of them lying so deep under the epithelium or in the ducts of the glands that the retrotarsal folds are not freed of them even by vigorous wiping; that thus far it has been found impossible to sterilize the roots of the lashes with any certainty, and that the white pus coccus and the bacillus xerosis are probably constant residents of the sac. Moderate wiping of the conjunctiva and lash roots is decidedly advisable before operating. According to J. A. Bach,[7] the present tendency in eye-surgery is toward asepsis and the use of the weakest antiseptic solutions. S. Snell [8] sums up his suggestions as to the best means of protecting artisans' eyes from injury as follows: The use of protectors should be compulsory for all grinders and for all workers in iron and steel whose employment renders them liable to be injured by iron and steel splinters, or exposes them to danger from molten metal.

According to Treacher Collins,[9] in nontraumatic enophthalmos, in addition to congenital shortness of the muscles and insertion of them too far back into the sclerotic, there is absence or insertion too far back into the orbital walls of the check ligaments, so that the unrestricted muscular tone causes some permanent retraction of the globe. In the traumatic cases which have come under his observation, the sinking is best explained by the theory of the contraction of the inflammatory products thrown out at the time of the orbital cellulitis.

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[1] The Practitioner, Sept., 1898.
[2] Centralb. f. prak. Aug., Feb., 1899.
[3] Jour. Am. Med. Assn., Apr. 8, 1899.
[4] Beit. z. Aug., Jan., 1899.
[5] YEAR BOOK, 1898.
[6] Knapp's Arch., Nov., 1898.
[7] Med. News, Dec. 24, 1898.
[8] Brit. Med. Jour., Aug. 12, 1899.
[9] Brit. Med. Jour., Sept. 23, 1899.

Penetrating Wounds.—In handling penetrating wounds L. A. Prefontaine [1] makes the eye as nearly aseptic as may be, and excises any prolapse of iris, ciliary body, or uvea. Suture of the conjunctiva over a scleral tear is better than suturing the sclera itself, and if infection is feared, the lips of the wound should be thoroughly gone over with the actual cautery. D. H. Coover [2] believes that egg-membrane has a wide field of usefulness in the treatment of corneal fistulas, in preventing iris prolapse, in simple extraction, and in preventing infection after penetrating wounds. W. H. Snyder [3] has seen a traumatic symblepharopterygium in a man 58 years old. The original injury dated back 30 years. The pterygium seemed to be almost a direct continuation of the skin about the inner canthus.

X-ray Diagnoses and Methods.—Within the last two years W. M. Sweet [4] has employed the rays for diagnostic purposes in 35 cases of suspected penetrating foreign bodies. In 13 cases there was shown to be no foreign body in the eye or orbit, while in 22 in which the rays indicated a foreign body present the localization was verified in 16 cases by magnet extraction or enucleation, and in 2 by the ophthalmoscope. His report indicates an accuracy in locating foreign bodies with the rays not equaled by any other means. [We fully concur in his belief that it is best when the mediums are clouded to have an x-ray photograph made at the earliest possible moment.] "If the result is negative, both patient and surgeon are reassured. If positive, attempt should be made to remove the foreign body before exudate binds it down. To wait is to menace the safety of not only the injured, but also the sound, eye." Davidson [5] takes 2 negatives, the light being changed in position about 6 cm. If the resulting negatives are examined side by side with a Wheatstone's reflecting stereoscope, a miniature stereoscopic picture starts into relief, favoring a fairly accurate estimate of the location of the foreign body in relation to a known point, such as a piece of lead wire attached to the lower eyelid. Silcock[6] cites a case in which the foreign body was located by Davidson's method, and afterward successfully extracted. [The evidence thus far offered all points to Sweet's as the most accurate method.] De Schweinitz[7] speaks of a case in which localization of a penetrating foreign body, by Sweet's method, was done with the utmost nicety, as the ophthalmoscope afterward showed. No hint was given the x-ray operator as to the site of the foreign body. Davidson[8] has located a piece of glass in the eye with his method. [This is, we believe, the first time glass has been successfully localized.] The glass showed plainly enough, but gave a less distinct shadow than does metal. Sweet's new forceps for the removal of copper, after localization, should theoretically be valuable. The forceps are passed

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[1] N. Y. Med. Jour., Nov., 1898.
[2] Oph. Rec., May, 1899.
[3] Annals Ophth., Jan., 1899.
[4] Phila. Med. Jour., Oct. 14, 1899.
[5] The Lancet, Feb. 4, 1899.
[6] Brit. Med. Jour., Feb. 4, 1899.
[7] St. Louis M. & S. Jour., May, 1899.
[8] The Lancet, May 20, 1899.

(closed) through the scleral incision to the spot indicated by the skiagraph, and if the two ends of the forceps touch the body, the electric current with which the forceps is connected is thus closed and will be shown instantly on the galvanometer, which has been placed in the path of the current. (Fig. 93.)

The Giant Magnet.—A clinical experience in 13 cases with Haab's giant magnet leads H. Knapp [1] to state that bodies visible in the anterior chamber can frequently be drawn out through the wound of entrance without enlarging it. Among the dangers is the injury done by foreign bodies as they tear their way out through the ciliary bodies. A. Barkan's [2] observations in 9 cases convince him that, used guardedly, the giant magnet will do more than the hand magnet, and at the same time lessen the danger of infection and of destruction of vitreous. W. A. Fisher [3] and H. Stillson [4] in particular give splendid descriptions of the construction and technical use of the giant magnet, and furnish good working indications for its use.

Operations.—G. C. Harlan [5] believes that when destructive disease is limited to the anterior segment of the eyeball, the best surgery would seem to be some form of abscission, retaining the natural vitreous, which is certainly better than any substitute therefor. He considers it an axiom that in such cases the ball should never be enucleated. Bourgeois [6] amputates the anterior ocular segment for total corneal staphyloma, incurable glaucoma, and anterior injuries causing total loss of vision.

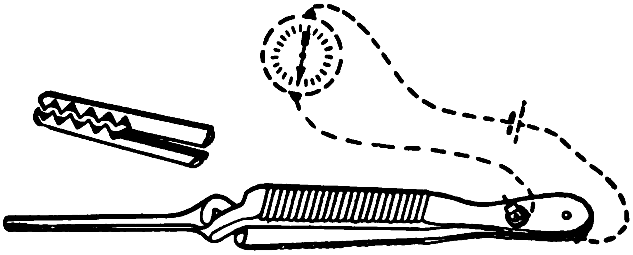

Fig. 93.—Forceps for removing copper from the eye (Sweet).

Enucleation.—To retain the operation of enucleation, which, for both patient and surgeon, has the advantages of simplicity and convenience, H. Snellen, Sr., [7] proposes 3 shapes of artificial eyes: (1) The original hollow eye-shell for cases of atrophic globes or after Mule's operation; (2) a double-walled shell for cases with a small stump, as after simple evisceration (see cut); and (3) an artificial globe for roomy conjunctival sockets. For some time past Priestley Smith [8] has, after enucleation, been making firm connections between the juxtaposed tendons and conjunctiva by means of sutures. He is confident that this method favors greater subsequent motility of the conjunctival bed than any of the older methods.

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[1] Knapp's Arch., March, 1899.

[2] Knapp's Arch., May, 1899.

[3] Jour. Am. Med. Assn., May 20, 1899.

[4] Oph. Rec., March, 1899.

[5] Oph. Rec., June, 1899.

[6] Rec. d'Ophtal., April, 1899.

[7] Oph. Rev., 1898.

[8] Oph. Rev., May, 1899.

Evisceration.—H. McI. Morton [1] contends that simple enucleation is not a correct surgical procedure, and warmly advocates Mule's operation in its stead. He suggests the insertion of a slightly larger sphere than is generally used in the classic Mule's operation. Oliver's [2] modification of Frost's implantation-method consists in suturing the tendons and conjunctivas over the inserted ball by a stitch, like Kalt's corneal stitch. He unites each pair of recti muscles separately. Risley's experiments [3] with implantation of sponge after enucleation have led him to consider it, on the whole, an undesirable operation.

Enucleation and Evisceration.—The committee of the Ophthalmic Society of the United Kingdom, appointed to consider the relative merits of excision of the globe (enucleation) and the various operations which have been substituted for it, have finally published their report.[4] They found that out of 10,734 enucleations, fatal meningitis ensued 7 times, but in each one of these 7 cases the removed eye was the seat of a suppurative panophthalmitis. Only 1 case of fatal meningitis was noted out of 1000 simple eviscerations, and none was recorded following Mule's operation, the insertion of a glass ball into Tenon's capsule (implantation), after abscission, opticociliary neurotomy, or opticociliary neurectomy. Sympathetic inflammation was found 5 times after Mule's operation, but in all these cases the original injury might easily have been the exciting cause. It was recorded very seldom after excision, and not at all after simple evisceration, but was shown to be comparatively frequent after the other operations. The chief conditions which necessitate excision of the eyeball, or any of the operations which have been substituted for it are: (1) Intraocular growths; (2) suppurative panophthalmitis; (3) wounds of the eye likely to excite sympathetic ophthalmitis; (4) anterior staphyloma; (5) shrunken eyeballs; (6) painful blind glaucomatous eyeballs. The general conditions, besides those of the eyeball itself, to be reckoned with are: (1) Age of the patient; (2) condition of the general health, occupation, and social status; (4) patient's surroundings.

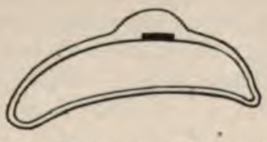

Fig. 94.—Cross-section of the double-walled artificial eye.

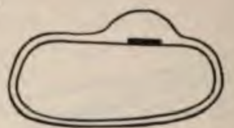

Fig. 95.—Cross-section of an artificial eye-bulb.

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[1] Annals Ophthal., Jan., 1899.

[2] Jour. Am. Med. Assn., April 29, 1899.

[3] Jour. Am. Med. Assn., April, 1899.

[4] Annals Ophthal., Oct., 1899.

THERAPEUTICS AND NEW REMEDIES.

Suprarenal Extract.—Since 5 years ago, when Bates introduced the suprarenal extract into eye-work, this drug has grown steadily in favor. Bates [1] himself is more enthusiastic than ever over its usefulness in ophthalmology. He finds it nonirritating and without effect on the nervous system, the pupil, the accommodation, or the corneal epithelium, neither is there any secondary vasodilation following its use. He awards it a prominent place in the therapy of conjunctivitis, keratitis, iritis, acute dacryocystitis, lacrimal operations, operations on the eye-muscles, cataract-extraction, and for iridectomy in inflammatory glaucoma. His belief is that within the limits of its sphere of activity no other substance can take its place. W. T. Southard [2] uses it in chronic inflammations of the cornea and conjunctiva in 4% strength. He claims that solutions of this drug will keep for several days if prepared by prolonged boiling in a 33% glycerin solution. J. Mullen [3] states that infusions of the extract add to the anesthesia of cocain; that in combination with the latter it produces absolute ischemia of the mucous membranes; that it also modifies postoperative swelling in some way, and that it materially hastens rapid healing. Not less important than any of the foregoing is his observation that he has never seen cocain-poisoning when the extract had been used.

Local Anesthetics.—Koster [4] relates several instances of follicular conjunctivitis following the prolonged use of cocain-solution. In one case he has seen paralysis of the conjunctival vessels as a result of such misuse of cocain. Theobald [5] also warns against cocain because of its disturbing influences on corneal nutrition. However, he frequently uses it to increase action of other drugs, such as atropin. Holocain has come to stay, having found as much favor among the British as with our own brethren. Hinshelwood [6] states that 1% solutions produce anesthesia in from 15 to 30 seconds without altering the tension, affecting the pupil, or disturbing the corneal epithelium. E. C. Ellett [7] lauds it highly in cataract-extractions, iridectomy, advancement, and other eye operations. He lays particular stress on the anesthesia of the iris obtained by it, and on its better effect on inflamed surfaces. [Nothing will prepare the way for the entrance of either cocain or holocain into an inflamed eye like 4% aqueous infusion of suprarenal extract.] Experimental and clinical observation of the action of holocain in 150 operations leads J. Guttmann [8] to prefer holocain in the removal of foreign bodies, in strabismus operations, in inflammatory conditions, and as an antiseptic. Cocain is preferable for iridectomy in glaucoma and cataract operations. J. Hirschberg [9] has performed several hundred major and minor operations under holocain without a single accident, and

[1] Knapp's Arch., May, 1899

[2] Pacific Med. Jour., Nov., 1898.

[3] Jour. Am. Med. Assn., May 20, 1899.

[4] Oph. Rev., March, 1899.

[5] Brooklyn Med. Jour., March, 1899.

[6] Brit. Med. Jour., Sept. 3, 1898.

[7] Phila. Med. Jour., Nov. 26, 1898.

[8] N. Y. Med. Jour., June 17, 1899.

[9] Centralb. f. prakt. Augenh., June, 1899.

prefers holocain for all operations on the eye save enucleation. Knapp[1] is using holocain instead of cocain in much of his operative work on the anterior part of the eye: first, because it is as powerful as cocain; second, because it is more rapid; third, because it is an antiseptic remedy as well as an anesthetic. Directly in line with Knapp's last statement is W. F. Norris'[2] experience with holocain in the management of corneal ulcers that drag along for weeks. Great improvement followed flushing of the eye with 1% solution, nor was there any effect on the corneal epithelium. Friebis[3] is strongly in favor of holocain for tenotomy and advancements, and Hansell[4] speaks of having used it almost constantly for several weeks in a case of neuroparalytic keratitis with the most gratifying results. De Schweinitz[5] found it of decided advantage in a case of hypopyon keratitis. Hasket Derby's[6] experience is, in general terms, that cocain is distinctly inferior to holocain in all operations on the anterior ocular segment, with the exception of the muscles. What is of decidedly more importance is his 3 full striking case-histories of corneal ulcers that healed rapidly under holocain when other measures had been unavailing. In a communication upon acoin (a new local anesthetic) R. L. Randolph[7] states that in solutions of from 1 : 100 to 1 : 300 satisfactory anesthesia ensues in noninflamed eyes in about the same time as with cocain, although in a few cases repeated instillations were necessary. It is without effect upon the pupil, the ciliary muscle, the intraocular tension, or the corneal epithelium, and is probably antiseptic. [Our own experience with the drug has been highly unfavorable.] Darier[8] seems to have found a field of usefulness for it. After a drop or two of cocain solution he injects a few drops of 1% acoin solution under the conjunctiva, and after waiting 10 minutes injects large quantities of a mercury cyanid solution without the least pain. Finding that the irritating properties of tropacocain solution were materially lessened by adding a small quantity of salt, Hilbert[9] has substituted tropacocain for cocain in all his eye-work. W. H. Poole[10] claims for beta-eucain that it is decidedly less toxic and less harmful to the corneal epithelium than cocain, and that its aqueous solutions keep well and can be boiled without influencing the activity of the drug. Moreover, it causes no mydriasis.

Astringents.—Protargol shares with holocain the popularity of the year. P. Valencon[11] claims for it all the antiseptic properties of silver nitrate and argentamin without their caustic properties. In over 400 cases of Egyptian ophthalmia Voilas[12] used protargol with surprisingly good results. For cauterizing, 50% solutions were employed, and 10% solutions at the patient's home, the strength of the latter solution being diminished as the disease yielded. Concerning the therapeutics of various forms of conjunctivitis, Darier[13] classes his results as follows:

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[1] Knapp's Arch., May, 1899.

[2] Oph. Rec., June, 1899.

[3] Ibid.

[4] Ibid.

[5] Ibid.

[6] Knapp's Arch., Jan., 1899.

[7] Oph. Rec., Aug., 1899.

[8] La Clin. Oph., June 25, 1899.

[9] Oph. Klin., June 20, 1899.

[10] Med. News, Oct. 21, 1899.

[11] Annals of Ophtal., Jan., 1899.

[12] La Clin. Oph., Nov. 10, 1898.

[13] La Clin. Oph., Oct. 10, 1899.

(1) Two hundred and seventy-two cases of *simple catarrhal conjunctivitis*—in some of which the Weeks bacillus, in others the pneumococcus, and in others, no bacteria were found—were cured rapidly by protargol in the strength of the ordinary solutions of silver nitrate. (2) In 37 cases of *purulent conjunctivitis* treated with protargol the gonococcus was found in each one; but in not one case was vision lost; in 2 of the 37 cases granular ulceration ended in leukoma, and in 1 case in adherent leukoma with resulting good vision. (3) In 36 cases of *subacute conjunctivitis*, all attended with the diplobacillus of Morax, benefit invariably followed the use of protargol, and definite cures were finally obtained by zinc sulphate, lead acetate, and ichthyol. (4) In 23 cases of *granular conjunctivitis* protargol was found to be no better than copper sulphate. (5) In 93 cases of blepharoconjunctivitis and blepharitis, after secretion was washed from the lids and the eyelashes, protargol was applied with benefit. (6) In 27 cases of dacryocystitis, after dilation with sounds, protargol was injected into the nasal duct with decided advantage. In concluding, Darier claims that the remedy is eminently safe, having used it in more than 500 cases without complications or accidents. It is absolutely unoffensive, and may be used without fear by the patients themselves. Pisenti[1] finds it efficient in 10% solutions in ophthalmia neonatorum, and in 2 to 5% solutions in catarrhal conjunctivitis. No very encouraging result was seen in granular conjunctivitis. A. Messner[2] reserves this drug for purulent inflammations only. E. S. Peck[3] gives the following silver strength for the different organic silver combinations: Argonin, 4.02%; silver nitrate, 6.03%; protargol, 8.03%. Falta[4] says that largin (a combination of silver and paranuclein) contains 11% silver, and is well borne by the eye up to 10% solution. He finds it useful in conjunctival and lacrimal catarrhs and ulcers. In purulent conjunctivitis of the new-born Villard[5] exhibits 2 to 3% airol ointment applied 3 times a day. Eberson[6] makes use of a 3 to 5% aqueous solution of ichthyol. He thinks it a sure remedy for trachoma and very effective in clearing up corneal scars. For the management of trachoma with pannus, W. M. Sweet[7] believes that jequirity is one of the most valuable remedies we have, but he would not use it in acute cases nor in those of much secretion. He begins with an infusion of 2 gr. to the oz. applied every second or third day, the strength of the infusion being increased by 1 gr. each time. Although his results are striking, he never employed more than a 12 gr. to the oz. solution. [This method, we believe, is distinctly original with Sweet. On his recommendation we have employed it in several slow, dragging cases with astonishing results.] In the management of membranous conjunctivitis, C. A. Veasey[8] relies upon frequent and copious instillations of a 10 gr. to the oz. potassium

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[1] Ann. della Facolta di Med. di Perugia, vol. x., folio 1.

[2] Centralbl. f. prak. Aug., Jan., 1899.

[3] Quar. Med. Jour., April, 1899.

[4] Centralbl. f. prak. Aug., Jan., 1899.

[5] La Clin. Oph., Nov. 25, 1898.

[6] Am. Jour. Med. Sci., Dec., 1898.

[7] Ther. Gaz., Feb. 15, 1899.

[8] So. Med. Rec., Jan., 1899.

chlorate solution as suggested by Knapp. H. B. Williams[1] recommends in subacute and chronic conjunctivitis, particularly of the indolent type, $\frac{1}{4}$ gr. to the oz. sodium silicofluorid by instillation 4 times daily.

Corneal Ulcers.—In corneal ulcers and abrasions C. A. Veasey[2] continues to employ 1 : 1000 solution of toluidin-blue, claiming that it is an active germicide and that, by staining the denuded corneal tissues a deep blue, it furnishes accurate knowledge of the extent of the ulcer; moreover, the repair process is materially hastened by its use. For the purpose, Jorigner[3] uses a 2% solution of eosin.

J. Hinshelwood[4] says that while the ideal mydriatic is yet to be found (such as would dilate the pupil rapidly and certainly to its maximum, without effect on the accommodation, and allowing the pupil to return immediately to the normal), euphthalmin approximates to this ideal more closely than any mydriatic hitherto used. It is a synthetic preparation, closely related to beta-eucain, to which it bears the same relation as does homatropin to tropococain. Five per cent. solutions are most suitable, and preliminary instillation of one drop of a 1% holocain solution increases the rapidity of the euphthalmin reaction.

Mydriatics.—E. Jackson[5] says that for brief dilation of the normal pupil euphthalmin in 5% solution, cocain in 2 to 4% solution, or homatropin in $\frac{1}{5}$% solution should be resorted to. To dilate the pupil without provoking glaucoma in an eye so predisposed, cocain alone must be used; to provoke an attack of glaucoma in a doubtful case, homatropin may be employed; for ophthalmoscopy, euphthalmin is quite the best agent. With this latter statement Wosrkessensky[6] is in perfect accord. He predicts that euphthalmin will take a prominent place in our therapy, to all of which Knapp[7] also gives his unqualified assent.

Miotics.—K. C. Chetwood-Aiken[8] finds arecolin bromohydrate a good miotic, and believes it superior to eserin in that it produces no pain nor headache, while its action is more rapid and powerful. It must be said, however, that it is more transient. The drug has been successful in Bietti's[9] hands in reducing the tension of glaucoma when eserin has failed.

New Methods.—Scrini[10] reaffirms his claim of increased power and quickness of action of the oily solutions of the ophthalmic alkaloids. Ulri and Frezals[11] show experimentally that potassium iodid in solution dropped into the conjunctival sac penetrates into the aqueous humor. The drug is found in the vitreous body only after it has entered the general circulation, and does not gain the anterior chamber until large internal doses have been given. They have also found[12] that a much larger amount of sodium salicylate penetrates the eye and reaches the vitreous humor after use of an aqueous solution in the conjunctiva than by ingestion. [If this can be shown to be true therapeutically, it is a fact of tremendous clinical importance when it is desired to reach the intraocular tissues with antirheumatics.] Piesberger [1] employs vibratory massage of the eyes [200 vibrations a minute with a photographer's electric retouching pencil], making such application usually over the closed lids. He finds it useful in episcleritis, corneal opacities, and the tension of glaucoma. Rose Welt Straus [2] arranges the ordinary ophthalmic salves in the following order as to their germicidal properties: (1) Iodia, 5 to 10%; (2) iodin, 5 to 10%; (3) hydrarg. ox. flav., 2%; (4) iodoform, 5 to 10%; (5) airol, 5 to 10%; (6) boric acid, 4%; (7) thioform, 5 to 10%; (8) aristol, 5 to 10%; (9) pure vaselin. She believes that salves as vehicles for antiseptics cannot be too highly lauded.

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[1] Alkaloidal Clinic, March, 1899.

[2] Phil. Med. Jour., Aug. 13, 1898.

[3] Annales d'Ophtal., Dec., 1898.

[4] Brit. Med. Jour., Sept. 23, 1899.

[5] Jour. Am. Med. Assn., April 29, 1899.

[6] Woch. f. Ther. u. Hyd. des. Aug., No.36, 1899.

[7] Knapp's Arch., May, 1899.

[8] Brit. Med. Jour., Jan. 14, 1899.

[9] Abs. Med. Bull., Oct., 1898.

[10] Arch. d'Ophtal., Jan., 1899.

[11] Arch. d'Oph., Jan., 1899.

[12] Ibid., Feb., 1899.

NEW INSTRUMENTS.

Color Test.—A convenient apparatus for testing the color-sense, based upon the lantern of E. H. Williams, of Boston, has been devised by S. Mitchell.[3] It consists of a box containing a light before which can be brought (by means of a revolving disc) various colored glasses of different areas.

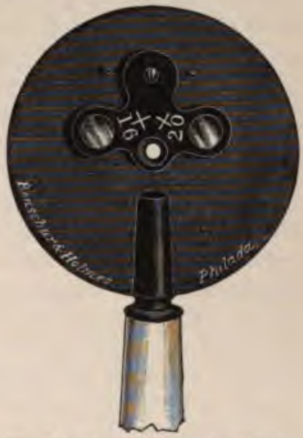

Fig. 96.—Compact clinical ophthalmoscope.

Ophthalmometer.—C. A. Oliver [4] has had Reid's ophthalmometer [5] mounted on a stand, and finds it a very satisfactory instrument so used.

Ophthalmoscope.—W. L. Pyle [6] offers a small, neat, compact clinical ophthalmoscope in which the new feature is continuous movement and successive increase of both concave and convex lenses up to 24 D. without any change in the surgeon's position before the eye.

Light Screen.—The latest model of the Thorington light screen [7] carries an iris-diaphragm by means of which the various sized apertures for ophthalmoscopy, retinoscopy, and muscle-tests are securable in an instant by turning the lever controlling the artificial iris.

Pupillometer.—At the 1899 meeting of the American Ophthalmological Society L. Howe showed a compound microscope he had had made for study of normal and abnormal states of the pupil. He claims for it high magnifying power with a perfectly flat field, making easy the detection of the slightest variation in the state of the pupil.

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[1] Centralb. f. prak. Aug., Feb., 1899.
[2] Knapp's Arch., Jan., 1899.
[3] Ophth. Rec., Sept., 1899.
[4] Southern Med. Rec., Jan., 1899.
[5] YEAR BOOK, 1898.
[6] Phila. Med. Jour., Feb. 25, 1899.
[7] Jour. Am. Med. Assn., Dec. 3, 1898.

Capsulotome.—F. Buller [1] introduces an instrument to lessen the risks of capsulotomy. It consists of 2 very fine sharp needles, fixed in a handle, parallel to each other. They are passed through the cornea to the densest portion of the capsule, which they pierce. A Knapp knife-needle is then entered from the opposite side of the cornea and made to pierce the capsule between the two parallel needles, when the capsule may be cleanly cut by one sweep of the knife-needle. Buller's idea is so to steady the capsule with the parallel needles that the knife-needle may work unhampered, and his experience would indicate that he has been successful.

Electromagnet.—W. B. Johnson [2] offers a portable magnet which may be operated by connection with any Edison incandescent electric lamp socket. It can also be attached to any Westinghouse plug, and is, therefore, ready for use at any place in which a current for incandescent electric lighting is found. He has used the contrivance with great satisfaction.

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[1] Am. Oph. Soc., 1899.

[2] Oph. Rec., Nov., 1899.

OTOLOGY.

By CHARLES H. BURNETT, M.D.,

OF PHILADELPHIA.

ACUTE OTITIS MEDIA.

Ear Under Atmospheric Pressure.—Rupture of the tympanic membranes, with clonic spasms of the facials, in a diver suddenly exposed to changed atmospheric pressure in a too rapid descent to the bottom of a river, while he was suffering from acute nasopharyngeal catarrh, is reported by J. G. Connal.[1] Entire recovery ensued under cautious antiseptic treatment through the external auditory canal.

Angina Ludovici.—The occurrence of angina Ludovici in connection with acute suppuration of the attic of the tympanum, by infection through the lymph-channels, has been reported by M. D. Lederman.[2] On the fourth day after the lingual swelling 3 incisions were made between the frenum and the back part of the tongue on the left side. Pus escaped from 2 of them, and rapid recovery ensued.

Acute Tuberculosis of the Middle Ear.—Müller[3] reports a case of acute tuberculosis occurring in a previously healthy ear in the course of treatment of pulmonary phthisis by Koch's tuberculin. Pus from the ear showed the presence in it of Koch's bacillus.

Facial Paralysis in Acute Otitis Media.—De Ponthière [4] reports the occurrence of facial paralysis in the course of an acute purulent otitis media, in a woman of 22. After paracentesis of the distended membrana tympani and the escape of blood and pus from the ear, the facial palsy rapidly disappeared. It is claimed that this case shows that many cases of facial paralysis which are supposed to be due to "cold," and are treated unsuccessfully as neuralgic, are really otitic in origin. Damieno [5] reports a case of facial paralysis with an acute otitis media. Rapid disappearance of the palsy ensued upon paracentesis of the membrana tympani and escape of secretion pent up in the drum-cavity. Leeches on the mastoid and various medications had failed to relieve the patient.

Acute, Simultaneous Inflammation of the Facial, Acoustic, and Trigeminus Nerves.—V. Hammerschlag [6] observed in a man of 32, who had contracted a severe coryza after exposure to a heavy snowstorm, the simultaneous occurrence of a so-called rheumatic paralysis of the facial, trigeminus, and acoustic nerves on the right side. The deafness was permanent.

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[1] Brit. Med. Jour., Sept. 10, 1898.

[2] Med. Rec., Oct. 8. 1898.

[3] Rev. Hebdom. de Laryn., Oct., 1898.

[4] Ann. des Mal. de l'Oreille, Aug., 1898.

[5] Arch. Ital. di Otol., vol. vii., p. 148.

[6] Arch. f. Ohrenh., Sept. 20, 1898.

A case of acute suppurative otitis media, occurring in la grippe, and accompanied with cholesteatoma and mastoiditis, *cured without trephination*, is reported by M. Ouspenski.[1] This author thinks it an error to perform hasty trephination of the mastoid in the course of acute otitis, even when there are indications for it, because, notwithstanding this latter fact, numerous cases recover without an operation. Important cases of acute middle-ear suppuration, with serious systemic and intracranial sequels, are reported by T. Heiman.[2]

Treatment of Acute Otitis Media.—S. C. Larsen[3] has made some very interesting and valuable investigations concerning the treatment of acute otitis media, occurring in 65 previously healthy soldiers in the garrison-hospital in Copenhagen. His object was to find out the treatment of middle-ear suppuration after perforation of the membrana has occurred, which will prevent complications and bring about healing of the ear most quickly. Inflations of air into the tympana, as well as insufflations of antiseptic powder in the ear, were excluded in all cases. The patients were divided into 4 classes—viz.: (1) Those not placed in bed and treated without antiseptic instillations ($\frac{1}{2}$: 1000 bichlorid); (2) those not placed in bed and treated with the antiseptic instillations; (3) those placed in bed, not treated with instillations; (4) those placed in bed, and treated with instillations. In all cases the ears were mopped and then plugged with sterilized absorbent cotton. The duration of the disease does not seem to be much, if at all, influenced by remaining in bed; but remaining in one's room until suppuration ceases seems to shorten the disease. The duration of the acute suppuration was 6 days less in those patients treated without instillations than in those treated with instillations, external conditions being equal. [This is a specially important conclusion, inasmuch as Larsen began his observations with the belief that antiseptic instillations in the ear in acute otitis media were of service.] Respecting the duration of the disease, the advantage was decidedly in favor of the "absolutely dry treatment with sterile cotton-tampons." Those cases in which prompt paracentesis was performed healed more rapidly than those in which spontaneous perforation occurred. Fetor of the discharge set in *only* in those cases treated with antiseptic drops. Granulations sprang up in 8 cases, 7 of which were treated with antiseptic drops in the ear, and 1 by the dry method. Prolapse of the mucous membrane of the drum-cavity occurred in 5 cases, none of which was treated by the dry method. Acute mastoiditis occurred only in cases treated by instillation in the ear. The absolutely dry treatment with sterilized cotton-tampons decidedly prevents complications, but it does not appear that remaining in bed has any influence either way upon the production of complications. Heermann[4] is opposed to syringing in purulent otitis media, as it tends to drive into the tissues that which would run out if let alone.

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[1] Ann. des Mal. de l'Oreille, Jan., 1899.

[2] Arch. of Otol., Oct., 1898.

[3] Arch. f. Ohrenh., Nov. 30, 1898.

[4] Arch. f. Ohrenh., Sept. 20, 1898.

Treatment of Acute and Chronic Purulent Otitis Media by Means of Formalin.—L. Vacher [1] claims to have had good results in the treatment of especially chronic purulent otitis media by means of 5% solution of formalin. He first irrigates the affected ear with a warm 5% solution of formalin, or fills up the ear with such a solution, allowing it to remain several minutes. Then the auditory canal is filled with sterilized cotton or gauze, soaked in the same solution or in one of 10% strength. When the discharge is abundant and fetid, the ear should receive this treatment daily; otherwise the dressings may remain in the ear 2 days. Otorrheas of long standing have been controlled in this way in the course of 15 days. [We have never been able to employ solutions of formalin stronger than 1 : 1000 or 1 : 500 without causing pain in the ear of at least short duration; we should hesitate, therefore, to employ a 5% solution in the ear.]

CHRONIC CATARRHAL OTITIS MEDIA.

W. Milligan [2] calls attention to the fact, recorded by many observers, of the large number of cases of deafmuteness in children found in connection with nasopharyngeal adenoids. This, he thinks, is more than a casual relationship.

Deafness in Tabes.—Lerner [3] maintains that deafness may occur under 2 forms in tabes—viz.: (1) Sclerosis of the middle ear, due to trophic disturbances in the fifth and glossopharyngeal nerves; and (2) nerve-deafness, due to change in the nuclei, trunk, branches, and terminal parts of the auditory nerve. The disease may be ambilateral.

The Ear in Mumps.—H. Foster [4] thinks deafness might be prevented after mumps by prompt and proper management of the case: protect the body, keep patient in bed, and treat the nasopharynx if indicated. Gallye[5] reports the case of a girl of 13½ years who, while convalescent from mumps, was suddenly attacked with vertigo on getting out of bed. This was followed by diffuse pains in the right side of the head, without nausea or vomiting. Absolute deafness in the right ear was found, but without any apparent change in the drum-membrane. A month later, the deafness having remained profound, treatment with pilocarpin was begun with a dose of $\frac{1}{24}$ gr., gradually increasing the dose until more than a centigram was given at the end of 12 days. After the administration of this last dose for 8 days in succession, the patient began to hear the tick of a watch pressed upon the mastoid, and she was able to stand alone, but did not dare to walk about. Quinin and pilocarpin were given internally (dose not stated) for 6 months longer, when equilibration and hearing were found to be entirely normal.

Disease of the Ear Following Endocarditis.—Habermann[6] reports a case of chronic endocarditis in a man of 53, in whom there had been a number of peripheral embolisms, more or less grave, during several years, but which had always ended in recovery. Suddenly the man was attacked with vertigo, vomiting, and tinnitus; and he discovered that he was deaf in the right ear. The deafness was absolute and unilateral, and remained so. It was attributed to a peripheral cause that was held to be an embolus in the stylomastoid artery.

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[1] Ann. des Mal. de l'Oreille, Jan., 1899.

[2] Brit. Med. Jour., Oct. 22, 1898.

[3] Monatssch. f. Ohrenh., Oct., 1898.

[4] Med. Herald, Oct., 1898.

[5] Arch. of Otol., Feb., 1899.

[6] Ann. des Mal. de l'Oreille, Jan., 1899.

Effects of Quinin and Salicylic Acid.—There is no doubt, as shown by Kirchner [1] and Grunert,[2] that large doses at a time of quinin and sodium salicylate produce both hyperemia and extravasation of blood in the middle and internal ears. Doses of from 16 to 32 gr. given to cats and dogs produce death in from 5 to 8 hours; and at the autopsy are found extravasations of blood and fluid in the intralabyrinth cavities sufficient to destroy hearing had the animal survived the dose. Grunert has shown that these results are due to the poisonous effects of the drugs, and not to strangulation, with symptoms of which the animals experimented upon died.

Affections of the Ear in Acute and Chronic Bright's Disease.—J. Morf [3] has collected 53 cases from the literature and 3 cases from his own practice, in which there was a distinct and undoubted connection between aural disease and nephritis. Such aural lesions may be divided into 2 classes: the first class contains diseases due to pathologic processes in the ear—macroscopic, microscopic, or revealed by functional examinations; the second class contains those cases in which no tissue-changes can be found to account for the functional disturbance. The first group includes only affections of the middle and inner ears. The former present themselves as inflammatory, inflammatory-hemorrhagic, and hemorrhagic. The latter class—labyrinth affections—is difficult to estimate, as there are no autopsies on record. In the purulent forms of ear-disease in the first group there is a marked tendency to caries and necrosis of the surrounding bony walls. Inflammatory changes in the eustachian tube and middle ears are often present at the beginning of otitis. Hemorrhages into the middle-ear cavities are frequent and abundant. In the second group neither otoscopic nor functional examination guides to a localization of the lesion. Increased arterial pressure, causing distention of the labyrinth-vessels and paralysis of the sound-perceivers in the cochlea, has been suggested in explanation. Rosenstein has suggested the possibility of an edema of the auditory tracts as the cause of defective hearing in nephritic patients. Others assume that transitory edema causes transitory functional disturbances in parts of the brain. As edema disappears, tinnitus aurium ceases and the hearing improves. Uremia without edema also causes deafness by involvement of the auditory nerve and central acoustic tracts. In some instances the "loss of hearing, with the changed condition of the urine, is the only sign of an existing nephritis." The latter condition is held to be "a symptom of chronic uremia." According to Dieulafoy, ear-symptoms are present in 50% of nephritic cases, slightly less frequent than the eye-symptoms. The ear may become affected in any stage of the nephritis; though it generally follows an exacerbation of the kidney-trouble. The subsequent course of the aural lesion is directly influenced by the course of the nephritis. Some French writers maintain that the ear on the side on which the facial edema is most marked becomes affected. It is also said by Morf that the quantity and the quality of the discharge in chronic purulent otitis are influenced by the edema. Voss has declared that "in the late forms of scarlatinous otitis there is one variety that is more dependent on the nephritis than on the scarlet fever itself." The connection, indeed, is so intimate that the progress of the nephritis may be estimated by the course of the otitis. Sometimes the sudden, unexplainable ear-symptoms are the first in a case of nephritis. "In any instances of ear-symptoms without known cause it is well to examine the urine." In regard to the second group, "there are a number of facts that indicate that we have to deal with the auditory nerve and its peripheral and central distribution." According to Gradeningo, affections of the trunk of the auditory nerve are characterized by diminished, or lack of, perception of the middle tones of the scale; while in labyrinth affections (peripheral) perception of high tones is interfered with, and the middle and low tones are well heard. He also holds that in affections of the auditory nerve-trunk the electric irritability of the nerve is increased. In some instances it is possible that in chronic nephritis the auditory tracts become interrupted by interstitial hemorrhages. The prognosis depends upon the nephritis; but the ear-disease must be regarded as a complication of grave import, especially in the purulent forms. Hemorrhages from the ear are usually soon followed by death. The treatment must be a combined one of aural and nephritic therapeusis, especially in the first group of nephritic ear-affections.

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[1] Berlin. klin. Woch., No. 49, 1881.

[2] Arch. f. Ohrenh., Nov. 30, 1898.

[3] Arch. of Otol., Oct., 1898.

Lesions of the Ear and Kidneys in Cases of Infantile Athrepsia.—Simmonds [1] advances the novel idea that there are found more or less serious lesions in the kidneys in all forms of pedatrophy in nursing-children, due, in his opinion, to otitis media in most instances. In 133 autopsies in nursing-infants the middle ear was free from exudation in *only 5 cases*. In 8 cases in which a bacteriologic examination was made the same organism was found 5 times in the ear and the kidneys—viz., Diplococcus pneumoniæ, Bacillus pyocyaneus, etc. Simmonds agrees with Kossel that the Bacillus pyocyaneus, benign in adults, is often dangerous in very young children.

Deafness from Osteomyelitis and Consequent Anemia.—Wagenhäuser [2] reports the case of a man suffering from traumatic osteomyelitis of the leg, necessitating several operations, with great consequent anemia. The latter condition finally induced functional and other structural changes in the nervous apparatus of the ear.

The Onset of Inherited Syphilitic Deafness.—Pritchard and Cheatle [3] have presented some important observations regarding the modes of onset of inherited syphilitic deafness, which they divide into 2 main groups—(*a*) those without giddiness, and (*b*) those with giddiness. The first group is the more usual, the history being that deafness came on gradually, first in one ear and then in the other, without giddiness, the eye-symptoms closely preceding the aural. As a rule, other signs of inherited syphilis are present. The disease is likely to occur between the ages of 8 and 25. The eye-symptoms do not always precede those of the ear. The second group is decidedly uncommon. In 1 of the latter class, a boy of 11, long-continued counterirritation by blister behind the ear seemed to cause marked improvement.

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[1] Ibid., Nov., 1898.

[2] Arch. f. Ohrenh., Feb. 10, 1899.

[3] Arch. of Otol., Oct., 1898.

Thyroid Treatment of Chronic Catarrhal Deafness.—M. Yearsley,[1] after fair trial of the thyroid treatment (system of Bruhl) in sclerosis of the middle ear and ankylosis of the ossicles, states that the results are negative.

Pneumomassage.—Pneumomassage in the treatment of catarrhal deafness has been favorably written upon by Warnecke,[2] Politzer,[3] R. W. Seiss,[4] C. H. Burnett,[5] M. F. Pilgrim,[6] and Ostman.[7] [The latter favors vibromassage, but the consensus of opinion among aurists is against the conveyance of any form of sound to the ear with the massage.]

Mechanical Vibration Applied to the Dorsal Spine in the Treatment of Aural Sclerosis.—Dundas Grant[8] has reported encouraging results from the application of mechanical vibration to the dorsal spine—once by means of the vibratory casket of Gilles de la Tourette, and once by a vibrator of his own device—in those cases of so-called progressive hardness of hearing in which there was also present the symptom of better hearing in a noise. These cases had not been benefited by any other method of treatment. Two cases, women of 24 and 37 respectively, are reported in which the good results in the hearing were permanent, and the tinnitus was lessened.

Arrest of Progressive Hardness of Hearing by Intratympanic Operations.—H. A. Alderton[9] has reported a case of progressive deafness, in which removal of the incus and crura of the stapes failed to improve the hearing. Six months later trephining the foot-plate of the stapes seemed to arrest the progress of the deafness in the ear operated upon, and to improve considerably the hearing in the opposite ear not operated upon. [Presumably by synergy of the two ears.] C. H. Burnett[10] observed a similar result in a case in which he removed the incus and the crura of the stapes in one ear, with apparent arrest of deafness in both ears affected with chronic catarrhal deafness. Burnett attributes the good results to removal of the incus alone, that being sufficient to relieve the retraction of the stapes.

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[1] Brit. Med. Assn., Aug., 1898.

[2] Arch. f. Ohrenh., Nov. 30, 1898.

[3] Jour. Laryn., Rhin., and Ot., Jan., 1899.

[4] Univ. Med. Mag., April, 1899.

[5] Jour. Amer. Med. Assn., Jan., 1899.

[6] Phila. Med. Jour., Mar. 11, 1899.

[7] Arch. f. Ohrenh., Sept. 20, 1898.

[8] Rev. Hebdom. de Lar. d'Otol. et de Rhin., Aug. 27, 1898.

[9] Tr. Am. Otol. Soc., July, 1898.

[10] Ibid.

Ménière's Symptoms and Ménière's Disease.—T. Heiman,[1] in an article on Ménière's disease, makes a distinction between what may be called Ménière's symptoms and Ménière's disease. He gives the history of 7 cases of the former and 2 of the latter. The principal characteristic difference between the 2 affections is that there is profound deafness in true Ménière's disease, while in a case presenting Ménière's symptoms there may be little or no deafness, only more or less impaired hearing. According to Heiman, Ménière's symptoms may result from hemorrhage or an exudation into the semicircular canals upon the nerve-terminals in the ampullas of these canals or upon the vestibular nerves. These same organs in the labyrinth may be affected by irritation without the labyrinth, but acting on the latter and producing so-called Ménière's symptoms. The causes of Ménière's disease are syphilis, leukemia, tabes, progressive paralysis, rheumatism, arthritic diathesis, trauma, exposure to cold, excessive bodily exercise, excessive eating, and psychic influences. Ménière's disease is considered of rare occurrence, but is more common in the adult man than in woman. Ménière's symptoms—dependent upon lesions of the external, middle, or internal ear—are generally remediable by removal of the cause of aural irritation. Sometimes this may be effected by local, and sometimes by constitutional, treatment; and the hearing is left but slightly, if at all, impaired. According to Heiman, true Ménière's disease is unyielding to treatment. [This author seems to be entirely ignorant of that class of cases of Ménière's disease accompanied by profound deafness, caused by retraction of the chain of auditory bonelets and impaction of the stapes in the oval window, occurring in chronic catarrhal otitis media. This form has also been called chronic tympanic vertigo, from its origin, and has been shown[2] to be entirely and invariably cured by removal of the incus and consequent liberation of the stapes and relief to the excessive intralabyrinth pressure, and the irritation of the vestibular and ampullar nerves.] A. Courtade[3] reviews the medicinal treatment of the past in Ménière's disease, calling to mind that Ménière considered many cases of gouty or rheumatic and sometimes of syphilitic origin, and treated them accordingly. Allusion is made to Charcot's treatment by large doses of quinin, 50 cg. daily, until the noises in the ear and vertigo ceased entirely with destruction of hearing. This, of course, is contraindicated if one ear is normal, as sometimes happens in Ménière's disease in one ear; for the normal auditory nerve would be destroyed at the same time as the diseased one. Sodium salicylate acts in the same way. Courtade thinks subcutaneous injections of pilocarpin the best remedy so far recommended in this disease. [As we have said elsewhere, no treatment is so efficacious in true Ménière's disease as surgical removal of the incus, liberation of the stapes, and consequent decongestion of the labyrinth, and diminution of intralabyrinth pressure.]

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[1] Ann. des Mal. de l'Oreille, Feb., 1899.

[2] C. H. Burnett, Am. Jour. Med. Sci., Oct., 1896, and Mar., 1899.

[3] Ibid., Mar., 1899.

CHRONIC PURULENT OTITIS MEDIA.

Ear-disease and Life-insurance.—A discussion on this subject is reported in the British Medical Journal, October 1, 1898. The participants were P. McBride, Thomas Barr, U. Pritchard, T. M. Hovell, R. McKenzie Johnston, H. Tilley, E. C. Baber, W. L. Muir, G. M. Low, William Hill, J. D. Grant, T. G. Lyon, James Ritchie, and L. H. Pegler. It was assumed that chronic purulent otitis media is the only ear-disease demanding serious consideration in connection with life-insurance. Each case must be considered by itself—as to its degree, present status, and tendency to grow better or worse, either with or without treatment, and also respecting the diathesis, social status, and habits of the patient.

Streptococcus in Cranial-aural Lesions.—W. Milligan[1] shows that the organism most to be dreaded in purulent processes in the ear is the streptococcus, as it is, of all the germs found in the ear, "the one most frequently met in cases of septic thrombosis of the sinuses, intracranial abscesses, and septic affections of the pia arachnoid of otitic origin. . . . No longer can the scientific physician of to-day ignore the importance of middle-ear suppuration."

M. Coville and E. Lombard[2] have recorded their observation of an otitic abscess of the brain, which they were able to open and drain by way of the mastoid and middle ear. Classic symptoms of brain-abscess were wanting in this case, excepting diffuse headache and intellectual hebetude.

Cleansing the Suppurating Ear.—To remove that which neither dry cleansing nor syringing alone will bring away from a suppurative ear, especially in chronic cases, Chevalier Jackson[3] has found finely powdered carica papaya to be efficient. As an efficient ear-syringe—meatus and intratympanic—the same author advises the so-called "pocket aspirator," or "veterinary hypodermatic," 2-dram size.

Operations on Membrana and Ossicles in Chronic Middle-ear Suppuration.—A. H. Cheattle[4] has made a comparative study of the subject named above, based on the operations and experiences of Kretschmann, Stacke, S. Sexton, Schwartze, Ludwig, Grunert, Lucæ, Kessel, Luc, Richardson, C. H. Burnett, C. J. Blake, Sir Wm. B. Dalby, Pritchard, Hovell, Cumberbatch, Edward Law, F. G. Harvey, M. Schield, W. Milligan, Bronner, P. McBride, Barr, Dench, H. Knapp, Roosa, Politzer, Reinhard, Zaufal, Hartmann, Bezold, Barth, Kirchner, Steinbrügge, Gellé, Lowenberg, Moure, Lermoyez, Miot, Gradenigo, Ferrier, Cozzolino, Schmiegelow, Delstanche, Guye, and J. W. Barrett. Cheattle's conclusions, based upon the opinions of the operators named above, in various parts of Europe, America, and even in Australia, are "that the operations on the drum and ossicles in chronic suppurative middle-ear diseases have a firm footing as surgical procedures, and widen the scope of the aural surgeon in a very great degree. These operations are to be considered in 2 ways—(1) those undertaken to remove the cause of the discharge; (2) operations undertaken to improve the hearing, after the discharge has ceased.

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[1] Brit. Med. Jour., Oct. 22, 1898.

[2] Ann. des Mal. de l'Oreille, etc., Nov., 1898.

[3] Jour. Am. Med. Assn., Jan. 28, 1899.

[4] Practitioner, Oct., 1898.

W. Milligan[1] maintains that the great advances in the treatment of suppurative affections in and around the middle ear and its adnexa are due to 2 main causes—"(1) The knowledge of the part played by microorganisms in the production of these affections, and (2) the knowledge of the value of strict antisepsis in subsequent treatment."

Surgical Treatment of Chronic Purulent Otitis Media.—Ludewig[2] claims that the radical mastoid operation may be avoided by the extraction of the malleus and incus and cureting the drum-cavity through the external auditory canal, in chronic suppuration of the middle ear. He gives a resume of 100 cases of ossiculectomy he has performed, in 80% of which the suppuration ceased. The hearing was improved in 75 instances. Facial paralysis occurred in no instance.

Intratympanic Surgery in Chronic Purulent Otitis Media and Sclerosis of the Middle Ear.—According to G. Ferrier,[3] intratympanic surgery has found its most successful application in chronic purulent otitis media, as shown by the reports of operators in all civilized countries. Its application in hyperplastic otitis media and its consequences has been less successful because of the uncertainty as to when to make the surgical interferences. [By excision of the ossicles in chronic purulent otitis media we remove diseased tissue, improve drainage, and arrest the purulency of the drum-cavity, thereby improving the hearing and preventing extension of suppuration from the drum-cavity to other parts of the temporal bone and cranial cavity. In so-called chronic catarrhal otitis media with intact membrana tympani intratympanic surgery should be limited simply to opening the membrana and removing the incus only. All other procedures are surely followed by more or less injurious inflammatory reaction. By the removal of only the incus the stapes is liberated and undue intralabyrinth pressure diminished or reduced entirely. By this means ear-vertigo is always relieved, and tinnitus sometimes banished entirely, sometimes partly relieved, and in other instances unrelieved. If incudectomy is performed early enough in progressive failure of hearing, the progress of the deafness is arrested in the ear operated upon, and possibly in the opposite ear not operated upon, and the hearing improved, as shown in a case reported by C. H. Burnett.[4] Such good effects upon the ear not operated upon have also been observed by Urbantschitsch and Ferrier. Ferrier[5] is in accord with Burnett: that in chronic hyperplastic otitis media removal of only the incus, the other bonelets being left in position, will afford all relief shown to be possible in such conditions, and is unattended by any serious reaction. Removal of the incus—*i. e.*, destruction of the conducting apparatus of the ear—is not justifiable in any case in which the hearing is good. According to your reporter's experience, true chronic ear-vertigo never exists without profound deafness, so that incudectomy for relief of ear-vertigo may be undertaken without fear of injury to hearing. If chronic retraction of the membrana tympani and the ossicles, with impaction of the stapes in the oval window, in chronic progressive failure of hearing, is the real cause of the final hopeless deafness in these cases, and if such impaction and progressive loss of hearing can be averted by removal of the incus and breaking the impacting force of the chain of ossicles, it seems rational to operate early in progressive failure of hearing while the hearing is still 10–15 feet, even if, after the removal of the incus, the hearing falls to 5–7 feet, and remains there, rather than let it sink nearly or quite to zero.]

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[1] Brit. Med. Jour., Oct. 22, 1898.

[2] Rev. Ann. des Mal. de l'Oreille, May, 1899.

[3] Ibid., April, 1899.

[4] Tr. Am. Otol. Soc., July, 1898.

[5] Ann. des Mal. d'Oreille, April, 1899.

Curetment after Excision of Diseased Ossicles.—E. B. Dench [1] reports a case in which curetment of the tympanic attic after removal of diseased ossicles in chronic purulent otitis media seems to have been the cause of subsequent infection of the jugular bulb. Ligation of the jugular, exposure of the lateral sinus and exsection of the diseased jugular bulb were followed by entire recovery. [We have always opposed cureting the drum-cavity after excision of carious ossicles in chronic otorrhea, as being likely to provoke facial palsy and other undesirable lesions.]

Indications for Radical Operations in Chronic Suppurative Otitis Media.—In general, these indications may be grouped under 2 forms, according to E. Lombard [2]: (1) In cases of reinfection or of rapid extension of a chronic otitic process, or whenever a grave complication is threatened, the indication is then for an immediate operation; (2) the indication is not immediate when the patient suffers little or no pain, and when there is no striking symptom in the mastoid. But even here the indication may be to operate if the osseous lesion is extensive. It must be borne in mind also that the attic, the aditus, and the antrum are integral parts of the drum-cavity and share in its infections in the great majority of cases.

Antrectomy as a Means of Treatment in Suppurative Middle-ear Disease.—In respect to the treatment of acute, subacute, and chronic suppuration of the middle ear W. Milligan [3] has summarized his views, which also represent about the average consensus of all aurists of experience; some, of course, leaning toward rather earlier operation, while others advise waiting until the latest moment to operate in the absence of pain or any urgent symptom of intracranial or systemic involvement. Milligan's views are as follows: "My contention is that in cases when suppuration has persisted for 12 months, and when for at least 3 months careful and rational local treatment has been tried but without avail, the mastoid antrum and contiguous mastoid cells should be opened and cleared out, the precise form of the operation—whether a Schwartze, a Stacke, or a modified Stacke—being determined by the peculiarity of each individual case. With proper precautions and with suitable instruments and means of illumination the mastoid operation, as at present performed, is, I believe, a safe procedure, and its results in the great majority of cases are very satisfactory. In cases proved to be of tuberculous origin—cases which have run an asthenic and almost chronic course from the commencement—early opening and drainage should, I believe, at once be resorted to without attempting any prolonged course of local treatment; for, even if it has the effect of temporarily arresting purulency, an early recurrence may safely be predicted. When cholesteatomatous masses occupy the attic and antrum, I am strongly in favor of early and radical operation, and the maintenance of a permanent mastoid fistula. Even should the mastoid operation not have the effect of producing a permanently dry and cicatricial lining to the newly formed antrotympanic cavity, I believe that the patient is in a very much safer condition than before operation, owing to the fact that all loculi and foci in which germ-teeming pus may collect are done away with, and parts which previously were concealed and difficult of access are now thoroughly exposed and capable of being accurately treated by local applications." Permanent retroauricular opening after radical mastoid operations has been advocated by Passow,[1] while methods for its prompt and cosmetic closure have been advocated by Karl Reinhard,[2] R. Botey,[3] Hartman, and many others.

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[1] Ibid.

[2] Ann. des Mal. de l'Oreille, Feb., 1899.

[3] Brit. Med. Jour., Oct. 22, 1898.

MASTOIDITIS.

Symptoms of Chronic Mastoid Empyema.—Cozzolino and Barrago-Ciarella call attention to what they consider a "unique and pathognomonic symptom"—viz., the speedy reappearance of pus in the tympanic cavity after it has been cleansed. The latter writer[4] asserts that "pus from the mastoid, in the absence of other symptoms, is distinguished from that due to suppuration in the attic or caries of the ossicula not only by its rapid reappearance after cleansing of the tympanum, but by its always flowing *in a single line over the inner wall* of the cavity from the posterosuperior to the posteroinferior segment."

Ambilateral Mastoid-disease.—G. Bacon[5] has reported a case of mastoid empyema on both sides, in a boy of 4, affected with acute otitis media. The high temperature in this instance was at one time supposed to be due to sinus-phlebitis, and the sinus-wall was exposed and found thickened, but after mastoid exenteration, the febrile symptoms disappeared. Sprague[6] reported similar cases; and Sprague,

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[1] Zeit. f. Ohrenh., vol. xxx., 3, p. 207; Arch. f. Ohrenh., May 19, 1899.

[2] Arch. f. Ohrenh., Nov. 30, 1898.

[3] Ann. de Mal. de l'Oreille, May, 1899.

[4] Bull. delle Malat. dell orecchio, Aug.-Sept., 1898; Jour. Laryn., Jan., 1899.

[5] Tr. Am. Otol. Soc., July, 1898.

[6] Loc. cit.

Knapp, and Blake, in the same discussion, reported copious discharge of pus from a craniomastoid wound 3 and 4 days after exploration of the middle and posterior cranial fossas with negative results. It was said by Knapp and Blake that in these cranial explorations for pus with negative results at first, followed a few days later by copious discharge of fetid pus from the cranial cavity, the pus has been found by them lodged in the jugular bulb.

Two Cases of Mastoid Disease of an Uncommon Character.—Robert Lewis, Jr.,[1] has reported 2 cases of mastoid disease of uncommon character: one of cholesteatoma, complicating a Bezold's mastoiditis (perforation of the medial plate of the process) successfully operated upon by the Schwartze-Stacke method (radical exposure of the middle-ear cavities) in a child of 7; and the other a case of tuberculous extradural abscess, in a woman of 24—operation and death. This patient was operated upon twice, the tuberculous extradural abscess over the tegmen being discovered and emptied at the first operation. The symptoms of drowsiness continuing, it was resolved, a week after the first operation, to seek for a possible cerebral abscess. In the second etherization, just after removal of the dressings, the patient stopped breathing, and after being kept alive for 5 hours by artificial respiration, she expired. Lewis has thought death may have been due to ether. During the artificial respirations, an aspirating-needle, introduced in various directions in the brain, failed to find pus.

Bezold's Mastoiditis, Trephination, and Recovery of Hearing.—P. Ménière[2] has reported a case of acute mastoiditis terminating in perforation of the medial plate of the process, though the spontaneous perforation in the bone was not recognized until trephination of the mastoid had been performed. [In this instance a consecutive abscess in the sheath of the muscles in the neck was anticipated by mastoid trephination.]

Mastoiditis, with perforation of the medial plate and consecutive abscess in the neck beneath the insertion of the sternocleidomastoid muscle, following acute otitis media in a new-born child, is reported by M. Lermoyez.[3] [The mastoiditis in this case was very plainly due to the vigorous and excessive treatment applied to a simple catarrhal otitis media, before the case was seen by Lermoyez.]

Mastoiditis with Diffusive Abscess.—Masini[4] reports 3 cases of mastoiditis of the so-called Bezold form. He makes a plea for restricting this term to abscesses by diffusion of pus, from the mastoid cavity, into the soft tissues of the neck, close to the mastoid process. A case of purulent mastoiditis complicated by epidural (extradural), subpetrous, and postesophageal abscesses (Bezold's), ending in death, presumably from internal hemorrhage, is reported by John Dunn.[5]

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[1] Arch. of Otol., Oct., 1898.

[2] Arch. Internat. de Laryn., Otol., et Rhinol., Sept.-Oct., 1898.

[3] Ann. des Mal. de l'Oreille, May, 1899.

[4] Ibid., Aug., 1898, p. 172.

[5] Arch. of Otol., Dec., 1898.

Mastoiditis.—Cases of mastoiditis have been reported by P. Hammond,[1] H. S. Jones,[2] Cozzolino,[3] A. Barkan,[4] and F. Pluder.[5]

Mastoid Fibromyxoma.—R. Eschweiler[6] reports a case of fibromyxoma of the mastoid in a woman of 38. In childhood chronic otorrhea existed in this subject, and 12 years before she was seen by Eschweiler a surgeon curetted the ear. Entire removal of the mastoid process was followed by complete cure in 6 weeks.

Pachymeningitis Externa and Extradural Abscess in Acute Mastoid Disease.—H. Preysing[7] reports 2 cases of pachymeningitis externa and extradural abscess, in consequence of very brief disease of the mastoid process which had not led to noteworthy destruction of bone: one in a man of 70, the other in a child of 5. In both cases the tympanum contained serum, probably a secondary result, as connection of the mastoid disease with the antrum was not demonstrated. It was thought that these cases might have been examples of bone-infection not originating in the mucoperiosteal lining of the air-cells. This view was supported, in the case of the old man, by the presence of a probably relapsing furunculosis in the meatus, as infection of the bone from this latter source is possible (rarefaction-ostitis). The author believes "that the unusual condition of the bone in this case illustrated that but little known disease—*acute inflammation of the compact osseous portion of the mastoid process.*"

Spontaneous External Rupture of Mastoid Empyemas.—Hamon du Fougeray[8] calls attention to the frequent occurrence of spontaneous external discharge of mastoid empyemas. He thinks that such spontaneous cures have been unduly neglected in literature. The most frequent spontaneous openings occur over the antrum. In other cases the opening occurs lower down in the mastoid surface and sometimes, as in the so-called Bezold form, in the digastric groove, in the medial plate of the mastoid process. A fourth form is that opening upon the occipital surface, *via* the air-cells of the occipital bone—a rare form, however. Du Fougeray then reports a case representing a *fifth form*—viz., "One in which the pus discharges itself forward into the auditory canal by destruction of the wall of the attic and the postero-superior wall of the osseous auditory canal": a kind of natural Stacke operation, or an "anterior rupture," as it is called by du Fougeray.

Electric Lathe and the Burr in Operations on the Mastoid and Petrous Portions of the Temporal Bone.—R. Lombard[9] after numerous trials has formulated the following conclusions regarding the use of the electromotor burr in operations on the mastoid and petrous portions of the temporal bone: (1) It is more exact. It does not slip so easily as the chisel and gouge; and if it does slip, the result is not serious. (2) There is no risk of wounding parts that should be carefully protected—as the facial nerve, the semicircular canal, the sinus, and the dura. If one of these organs is reached, the spheroid form of the burr pushes the tissue ahead of it without cutting or wounding it. In breaking down the wall of the aditus with a burr the surgeon may dispense with the protector and almost with the probe. (3) The shock of the blow from the mallet is avoided. (4) The operation is more rapid—a fact not to be despised in an operation always long if it is to be complete. (5) The cavity made is smooth: no angles, asperities, or scales. (6) If the apophysis is eburnated, which is not uncommon in cases of chronic purulent otitis media, the burr is always successful if properly used with sufficient force. Lombard thinks the burr is specially useful in separating the sinus-wall from its osseous canal. Overheating of the burr is prevented by the necessary pauses in the operation.

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[1] Boston M. and S. Jour., Dec. 22, 1898.

[2] Brit. Med. Jour., Oct. 22, 1898.

[3] Jour. Laryn., Rhinol., and Otol., Mar., 1899.

[4] Ibid., April, 1899.

[5] Arch. f. Ohrenh., May 19, 1899.

[6] Ibid., Sept. 20, 1898.

[7] Arch. of Otol., Oct., 1898.

[8] Ann. des Mal. de l'Oreille, April, 1899.

[9] Ibid., Sept., 1898.

Blood-clot in Mastoid Operations.—C. J. Blake[1] has made further use of the so-called "blood-clot" dressing—*i. e.*, allowing the cavity after mastoid evacuation, especially in acute cases, to fill with blood, and thus hasten healing by first intention. The same method he finds applicable after mastoid operations in chronic cases, "excepting when in the latter the extent of the field of operation makes it necessary to resort to packing for other reasons." Blake has found it "perfectly possible for a blood-clot to remain clotted in one part of the evacuated mastoid, and to become septic in another, thus forming a basis for primary external healing in one portion, and in another breaking down," necessitating, of course, drainage and healing by granulation.

OTITIC SINUS-THROMBOSIS.

F. Whiting[2] claims that the mere presence of a noninfective clot in the sinus does not menace life. Also, "that an infected thrombus in the first stage is amenable to almost certainly successful operation, . . . and that, in a more advanced stage, when pyemic manifestations are present, but before the appearance of metastases, there is still an excellent chance for the patient; and even under the most adverse conditions, when the purulent phlebitis has extended into the jugular, and metastatic abscesses are present, a small proportion recover after very extensive operation involving resection of the jugular vein. There is recorded one case in which not only was the jugular involved and metastases present, but septic pneumonia existed as well; still, operation was performed and recovery ensued." The author laments the deficiency in diagnosis of sinus-thrombosis; and he believes that the rate of mortality is higher in this disease than is commonly supposed. In regard to the early recognition of this disease he says: "The prime essential is to impress firmly upon the mind of the *general practitioner*, under whose supervision these cases, as a rule, first come, the fact that nearly all inflammatory diseases of the brain and its coverings are infective in their nature, and that of such diseases of the brain the majority are otitic in origin. Hence the routine initial step in the examination of all patients exhibiting symptoms of inflammatory intracranial affections should be, save in the presence of other causes absolutely confirmatory, a physical examination of the ear." The form of bacteriologic infection present is usually streptococcic or staphylococcic, the former being the more virulent. Three clinical stages of **sinus-thrombosis** are given, as follows: *First stage:* The presence of a thrombus, parietal or complete (chiefly composed of fibrin, red blood-cells, exfoliated endothelium, leukocytes, and homogeneous protoplasmic cells), not having undergone disintegration and accompanied by slight or moderate pyrexia, rigors being usually insignificant or absent. *Second stage:* The presence of a thrombus, parietal or complete, which has undergone disintegration, with resulting systemic absorption, characterized by frequent rigors, and pronounced septicopyemic fluctuations of temperature. *Third stage:* The presence of a thrombus, parietal or complete, which has undergone disintegration with systemic absorption, accompanied by rigors, rapid and great fluctuations of temperature, and central or peripheral embolic metastases, terminating usually in septic pneumonia, enteritis, or meningitis." The diagnosis of the *first* stage, owing to the indeterminate character of the symptoms up to that point in the progress of the disease, is rarely made until an operation for mastoiditis has been performed. In this stage recovery is still possible, though not probable without operation upon the sinus, for the thrombus must not be considered, even now, as noninfective. "The only safeguard against encountering the increased gravity of the second stage is to operate immediately upon the recognition of the first stage." The prognosis in the first stage is highly favorable; while in the second stage it is very much less so, on account of the systemic infection and the operative risks. The transitional period between the first and second stages is usually brief, and its completion is usually heralded by a sharp rigor. The diagnosis of the *second* stage is established by symptoms that cannot be attributed simply to a suppurative inflammation of the middle ear, but can be dependent upon nothing but an otitic septic involvement of the sinus. "The features of the patient now assume a distressed and anxious look, with an ashen pallor, and the countenance is frequently suffused with copious, colliquative perspiration, the exhaustive sweating being a significant accompaniment of this stage; there are loss of appetite and constipation; respiration becomes shallow and increased in frequency, and the *fluctuations in temperature are rapid and excessive,* and associated with repeated and severe rigors. Vertigo and vomiting may be present, and, if constant, are usually associated with meningitis. The pulse and respiration in the first week show moderate acceleration, becoming exaggerated with increasing toxemia, amounting in fatal cases to 180 or more, and at times defying computation. The respirations may number 40. Consciousness, in cases uncomplicated with meningitis, may remain unimpaired until the moment of death. Again, it may be lost speedily, the patient becoming wildly delirious or somnolent and then comatose. Mild delirium does not signify much; but, if prolonged, with periods of violent delirium, the prognosis becomes grave, for coma and death soon ensue. It is at this point that symptoms of typhoid appear, and, if abdominal manifestations are prominent, are often responsible for fatal error of diagnosis. Septic pneumonia, enteritis with albuminuria, and affections of the pericardium and pleura may be encountered in this stage, and are to be regarded as manifestations of rapidly approaching and unfavorable termination. Now appear 'local signs of circulatory embarrassment,' due to engorgement of the veins tributary to the sinuses of the dura mater. Among the earliest are hemicrania, sometimes mild, but at times of unendurable severity, radiating from the diseased ear over the corresponding side of the head. There then appears 'tenderness in the upper portion of the posterior cervical triangle, dependent upon phlebitis of the deep veins of the neck,' and forming a valuable guide in diagnosis. As the anterior and posterior condylar veins often participate in inflammatory extension from the sinus, edema of this locality appears in conjunction with tenderness. . . . When plainly marked, its significance is unequivocal of obstruction in a great blood-channel; and it usually implies that the thrombus has already extended into the jugular bulb, and that infective dissemination has begun." Edema of the occipital and nuchal regions (Griesinger's symptoms), dependent upon phlebitis and obstruction of the mastoid and occipital veins, must not be confounded with edema of the mastoid region, so commonly encountered in uncomplicated empyema of the mastoid process. Tenderness over the point of exit of the mastoid emissary vein is indicative of the presence of an extradural collection of pus, usually in the cerebellar fossa, rather than of sinus-thrombosis. A symptom of sinus-thrombosis first pointed out by Gerhardt and Hessler, and confirmed by Whiting, "is elicited by laying the finger with sufficient force across the course of the *external* jugular of the affected side to cause obstructive pressure, when it will be noted that the vessel either exhibits but slight turgescence or none at all; while upon the healthy side the external jugular, although not unduly prominent, becomes, upon the application of similar pressure, engorged to a pronounced degree." Another manifestation of the presence of obstruction of the sinus occurring with varying frequency, and first noted by Stirling,[1] "is a moderate edema or puffiness of the eyelids of the corresponding side, as a result of interference with the cavernous sinus and engorgement of the ophthalmic vein. Associated with this symptom, intraocular inflammatory changes are observed in a considerable number of cases, usually taking the form of neuroretinitis." An examination of the fundus of the eye should never be neglected in a case of supposed sinus-thrombosis, in Whiting's opinion. Okukeff[2] claims to be able to recognize the presence of a thrombus in the lateral sinus by "dullness on percussion on the affected side," as compared with the

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[1] Tr. Am. Otol. Soc., July, 1898.

[2] Arch. of Otol., Dec., 1898.

[1] Canada Med. Rec., Nov., 1896.

[2] Arch. f. Ohrenh., vol. xxxviii., pp. 169–175.

clear tone of the corresponding region in the unaffected side. But Whiting has failed to substantiate the value of this symptom. Another symptom of value, appearing late in the second or the beginning of the third stage, is tenderness along the course of the internal jugular in the neck, with perhaps an appreciable cord-like feeling in the affected vein. Of course, any of the signs previously named may be absent, even the fluctuations in the temperature. The diagnosis of the third stage is, "to the practical observer, distressingly clear." All the previously named symptoms of the second stage are augmented by the additional symptoms resulting from the dissemination of septic emboli and embolic metastasis. However, even in the midst of these symptoms, including septic enteritis, and *acute septic parenchymatous nephritis, recovery has taken place* in some of the cases operated upon by Whiting.

Treatment.—When a metastatic abscess is accessible, the purulent contents should be evacuated immediately, and the cavity packed with gauze and allowed to granulate. The preliminary steps to an operation upon the sigmoid sinus are precisely like those for the usual mastoid operation. The sigmoid groove may quickly and conveniently be opened with a curet or rongeur, "but under no circumstances should the chisel be employed for this purpose. The rongeur used for this purpose should be as broad as possible at its beak." The most accessible part of the sigmoid groove for opening is the knee and descending portion. The knee lies about at the level of the suprameatal spine, and usually from one-half to two-thirds of an inch posterior to it. If the mastoid is markedly prominent and convex, the groove will be found very near the posterior wall of the auditory canal, while when the mastoid process is broad and flat, the sinus usually lies quite far behind the posterior wall of the osseous auditory canal. After the groove is opened, "further exposure of the sinus is most readily accomplished with the rongeur, the chisel being employed to remove the outer table of the skull whenever its thickness renders difficult the use of the bone-forceps; . . . all carious bone must be eradicated whithersoever such process may lead." Operation on the sinus cannot be performed easily if less than 2 in. of its bony covering is removed. It is safe to remove enough, whether diseased or not, to expose fully the diseased portion of the sinus. [Chipault and Lambotte have removed the bone and the sinus, after ligation, from the bulb to the torcular.] Downward, it will serve all purposes to remove the groove as far as and including the external margin of the jugular foramen, caution being observed to avoid the posterior condylar foramen behind and the lower third of the fallopian canal in front. In most instances the thrombus is situated in the descending portion of the sigmoid sinus, extending to the knee (but rarely far beyond it into the lateral sinus), and thence downward toward the bulb, and sometimes further downward into the jugular vein.

1. When the thrombus is incomplete or parietal, it is hard to recognize. As blood still flows through the sinus, the aspirating-needle is of no assistance. Inspection will not aid, as there is no apparent bulging.

Palpation must be depended upon, for it will reveal the fact that the sinus-wall will dimple like a bladder filled with water, and is equally tense in all directions. Pressure with the finger-tip over the parietal clot will impart a sensation to the finger of contact with "a thickened tissue under which lies an unevenly distributed, yielding substance." Before an incision is made in the exposed sinus, it is imperative to obstruct the flow of blood both below and above, so that the hemorrhage may not be excessive, as it will occur from both directions at the same time. The sinus should now be incised in its long axis to an extent sufficient to admit of the convenient introduction and manipulation of a curet, with which the clot should be thoroughly and rapidly removed. Some bleeding should be permitted, as it will work out particles of the clot not reached by the curet. Every vestige of clot must be removed and the circulation thoroughly reestablished, or sepsis will continue, and another operation be demanded after the patient has become weaker. As the parietal and visceral walls of the sinus in thrombosis may be very close together, the initial incision into the sinus must be made cautiously, or the visceral wall and the brain may be wounded. After controlling the hemorrhage, the entire wound-cavity should be filled with gauze covered with cotton, and a firm bandage applied; or "gauze may be packed firmly upon the opening in the sinus, and the flap of the skin-wound stitched down upon the packing with heavy sutures." The stitches may be removed in 24 hours, or later, as demanded by expediency.

2. The author then considers a completely obstructing thrombus at the knee of the sigmoid sinus, or in its vicinity, above or below. In this condition "the sinus lacks its characteristic smoothness and luster, and is seen to be distended and generally darkly discolored at the site of the clot; granulations may or may not invest the walls. The presence or absence of pulsation is of no material significance. The sinus has a doughy feeling if the clot is fresh; or it is firm, tense, and resisting if the clot is older and contains granulations. In such a case 'the sinus should be fully exposed above and below the obstruction, and pressure made upon it both at the distal and proximal ends of the clot.' The incision must be sufficient to admit easily and freely a small curet. When the thrombus is recognized early in its formation, while it is soft and nonadherent, a short incision is ample, as the clot will be forced by the blood-pressure in the sinus and the elasticity of the meninges behind it through the opening thus made. When a small, firm obstruction exists, the sinus should be very carefully scrutinized between the clot and the bulb, so that any respiratory movements of its walls may be detected, for in case of aspiration of the jugular bulb and sinus below the thrombus, danger of aerial embolism is to be apprehended, unless the precaution of ligating the jugular, preliminary to opening the sinus, is observed." After removal of the clot the visceral wall of the sinus should be carefully examined with a probe, in order to see whether there exists a fistulous tract leading to an abscess in the occipital lobe or cerebellum. If the incision in the sinus has been a small one, firm

application of a gauze pad upon it, and one on the intact sinus-wall at each side of it, exercises sufficient pressure when supported by cotton and tight bandaging.

3. Finally, we are brought to the consideration of a completely obstructing thrombus extending into the bulb or involving the jugular vein, or both. The local symptoms are very pronounced, and, in fact, are an exaggeration of those enumerated under No. 2 as characterizing a small complete obstruction. If sight and touch cannot establish the diagnosis, the aspirating-needle will give the desired aid, "for when thrust into the sinus at various points over the suspected area, it will exhibit either pus, serum, or nothing at all, as the case may be, but, in any event, no venous blood." In this variety of thrombus the incision should begin at its distal end, and an endeavor be made to reestablish the circulation from the torcular side first. Of course, hemorrhage can, in such a case, occur only from one direction, and can be controlled easily by a gauze pledget under the left index-finger of the operator. The incision beginning at the torcular end of the clot, should extend downward toward the bulb about 1½ in. Should the circulation be reestablished at the time of the incision, it can be controlled by the finger until that portion of the clot exposed by the incision can be thoroughly curetted and the opening irrigated with bichlorid solution (1 : 5000). Then a permanent gauze hemostat may be placed in position. If the circulation is not reestablished immediately upon the incision, or if its flow is scanty, the incision may be extended further backward if the opening in the sigmoid groove permits, or a small curet may be introduced into the lumen of the sinus and the clot removed by outward and upward movement of the curet until rapid hemorrhage occurs. The latter may be momentarily permitted, "thus favoring the expulsion of any loosely attached infective particles that may have eluded the search of the curet." Then a permanent gauze hemostat may be applied, as has been stated. The first half of the operation for reestablishment of the circulation is now done. Reestablishment of the circulation from below is brought about by extending the original incision in the sinus-wall, either with scalpel or scissors, well downward to the bulb, and resorting again to cureting. "The application should be attended with equal care, but with greater vigor than above, the tortuosity of this portion of the sinus rendering the attachment of the clot more tenacious and less accessible than near the knee, hence the thorough removal is proportionately more difficult." When the circulation in this direction is completely reestablished, the flow of blood is rapid and very copious, so that the operator must never be satisfied with a scanty or slow hemorrhage as the result of his cureting in the bulb, but persevere until he obtains a copious flow of blood. Too copious hemorrhage can always be controlled by pressure on the jugular in the neck, until cureting is done, after which a tampon of iodoform gauze, thrust firmly, but not too forcibly, into the bulb gives prompt and efficient control. We must remember that the jugular foramen gives exit to the eighth pair of cranial nerves, and that undue force in introducing the tampon

in this region might interfere with the functions of the pneumogastric. The circulation being reestablished and the gauze packing in position, the visceral wall of the sinus lying between the 2 tampons should be examined with a probe, "that any softening or fistulous tract may be detected leading to a subdural collection of pus, or to an abscess in the brain." No such complications being present, and the sinus-wall intact, "the whole should be thoroughly irrigated with a solution of bichlorid (1 : 5000), and folded strips of gauze carefully packed into the bone. The extreme angles of the cutaneous flaps should then be stitched, leaving an extensive wound sufficiently long to admit of unembarrassed inspection and subsequent dressing. This wound must be filled with gauze, covered with cotton, and the apposition maintained by a firm bandage."

Shock is often great after such an operation as has just been described, and for such complication Whiting recommends, as giving speedy relief, "an intravenous saline injection of from 16 to 24 oz. introduced, at a temperature of from 105° to 108° F., through the median basilic vein." If this cannot be done, a good substitute is the "injection into the bowel of a pint or a quart of normal saline solution at a temperature of from 110° to 115° F." Great embarrassment in diagnosis may arise if the **site of the clot** is at or below the bulb. A patient may exhibit all the symptoms of sinus-thrombosis, and yet the sinus, when exposed from the knee to the bulb, be full of fluid blood. Whether this comes from the torcular or the jugular side is not easy to decide before opening the sinus. In this surgical dilemma, Whiting resorted to the following manœuver: "The left index-finger was placed across the sinus at the bulb with sufficient firmness to cause obstructive pressure and collapse of the walls at that point; the right index-finger was then placed close beside the left, and with a stroking, stripping movement, carried steadily along the course of the sinus toward the torcular as far as the knee, at which point the finger rested with firm pressure. The result of the procedure was to expel the blood from the sinus and leave its walls in a collapsed condition between the 2 controlling fingers. An assistant now makes firm pressure upon the jugular vein low down in the neck, so that the backward pressure of the blood-current toward the bulb may be as much as possible augmented. It is now obvious that, in case no obstructing thrombus existed in the vein or sinus, the collapsed wall of the latter would be immediately distended with blood upon removing the pressure of either finger." In one case, after expressing the blood from the sinus and collapsing its walls, the finger-pressure at the bulb was removed; but the sinus did not refill, thus demonstrating that the obstruction was in the bulb or below, in the jugular vein. In such a case, the finger-pressure at the knee being removed, and the sinus being immediately filled with blood, the operator is assured that there is no obstruction on the torcular side. In this experiment all expressive movements should be made from the bulb toward the torcular, to prevent the risk of forcing particles of the clot into the jugular. In those "very extreme" cases in which the infection has extended into the jugular and has resulted in septic phlebitis, possibly suppurative in character, it will be manifestly impossible to reestablish the circulation from that direction. Hence, in order to anticipate or **prevent dissemination of septic matter,** the jugular vein must be ligated as low down as possible near the clavicle and also high up as near as possible to the bulb, and the jugular resected and removed entire from the neck. The jugular bulb should then be syringed thoroughly, but not too forcibly, with a solution of bichlorid (1 : 5000), the stream being directed downward into the bulb, through the incision already made for cureting. Forcible upward syringing from the neck into the bulb may easily wash septic material through its softened visceral wall into the subdural or subarachnoid spaces. In this operation, at the moment of opening the sinus-wall, the foot of the operating-table should be appreciably elevated, in order to increase the blood-pressure in the dural sinuses, and thus diminish the risks of the admission of air into the open vein. **Aspirating puncture** of the sinus is of little value even in simple cases; it is only confirmatory of other diagnostic means. It is valueless in parietal thrombosis and obstruction in the bulb and upper jugular. Time must not be begrudged in operations on the sinus. Generosity in this respect will often insure success. Sinus-phlebitis and thrombosis have been reported by H. S. Ballance,[1] H. Preysing,[2] F. de Sajo,[3] J. E. Sheppard,[4] John Dunn,[5] W. Milligan,[6] Delanglande,[7] and R. Botey.[8]

OTITIC CEREBRAL ABSCESS.

Symptoms of **extradural abscess** or of **sigmoid-sinus thrombosis** always dominate and mask those of brain-abscess when they occur together, and it is not until the former condition has been relieved that reliable evidence of the pressure of a brain-abscess can be obtained, as shown by Macewen and Milligan.[9]

Symptoms in Otitic Brain-lesions.—W. Milligan[10] states that "the occurrence of sensory aphasia is a symptom in cases in which a pathologic lesion is situated in the superior temporosphenoidal convolution; of motor aphasia, when the lesion is in the third left frontal convolution, or when pressure, say from an adjoining temporosphenoidal abscess, is exerted upon this center; of twitching paresis, or paralysis of various muscles or groups of muscles, when the cortical center which controls these muscles is interfered with either as the result of an irritative and spreading meningitis or as a result of the pressure of a gradually increasing focus of suppuration." Hemiplegia is a symptom that the contents of the abscess press upon the internal capsule. Involvement of the third nerve is a symptom of temporosphenoidal abscess; sometimes the sixth nerve is involved in the same lesion. In cerebellar abscess we find sometimes optic neuritis followed by atrophy. An uncomplicated otitic cerebral lesion is not difficult to diagnose, but when one or more lesions occur together, then symptoms of one overlap or mask those of the other.

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[1] Brit. Med. Assn., Aug., 1898.
[2] Arch. of Otol., Aug., 1898.
[3] Rev. de Sci. méd. de Barcelona, Aug. 5, 1898.
[4] Tr. Am. Otol. Soc., July, 1898.
[5] Arch. of Otol., Dec., 1898.
[6] Brit. Med. Jour., Oct. 22, 1898.
[7] Gaz. Hébdom. de Méd. et de Chir., May 18, 1899.
[8] Ann. des Mal. de l'Oreille, May, 1899.
[9] Brit. Med. Jour., Oct. 22, 1898.
[10] Brit. Med. Jour., Oct. 22, 1898.

An **extradural abscess,** occurring in a tuberculous woman of 24, is reported by R. Lewis, Jr.[1] Temporosphenoidal abscess of otitic origin, with marked amnesic aphasia, has been reported by F. S. Milburg.[2] Recovery ensued in this case after operation. **Temporosphenoidal abscesses** of otitic origin have also been reported by Heine,[3] Gruening,[4] Vouzelle,[5] W. Milligan,[6] and others.

Diagnosis of Otitic Cerebellar Abscess.—Gradenigo[7] draws attention to the fact that encephalic abscesses consecutive to purulent middle-ear otitides are situate either in the temporosphenoidal convolutions or in the lateral lobe of the cerebellum, and in both instances near the diseased temporal bone. Up to the present time the same description of symptoms has been applied to the 2 kinds of abscesses. Nevertheless, the pathogenic, anatomic, and therapeutic differences that exist between the two forms of encephalic abscesses justify a special description for each. Gradenigo then proceeds to describe the symptoms of otitic cerebellar abscess: "Cerebellar abscess is less directly in relation with osseous lesions than cerebral abscess. Infection is conveyed to the cerebellum either by the sigmoid fossa or by the labyrinth through the internal auditory canal. With cerebral abscess there often coexists sinus-thrombosis or leptomeningitis. Differential diagnosis of these lesions is most difficult. Neither optic neuritis, lateral nystagmus, titubation, vertigo, nor rigidity of the nucha is a special symptom of cerebellar abscess. The seat of the lesions one encounters in the course of an operation in a case of chronic purulent otitis media with symptoms of endocranial abscess—as, for example, caries in the sigmoid groove, with thrombus of the sinus or a purulent labyrinthitis—will indicate that there is probably an abscess in the cerebellum. A frequent cause of cerebellar abscess is the passage of chronic purulency from the tympanum to the cerebellum, by way of the labyrinth, and, therefore, the most constant and pathognomonic symptoms are dizziness and vomiting, especially upon motion, as shown by cases reported by J. O. Green[8] and J. B. Crombie.[9] The vertigo in such cases comes on suddenly, being preceded by earache, and followed by nausea and vomiting.

Acland and Bellanger have recently called attention to symptoms that would specially indicate the presence of cerebellar abscess—viz.:

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[1] Tr. Am. Otol. Soc., July, 1898.

[2] Med. Age, Nov. 10, 1898.

[3] Arch. f. Ohrenh., Nov. 30, 1898.

[4] Tr. Am. Otol. Soc., July, 1898.

[5] Ann. des Mal. de l'Oreille, Sept., 1898, p. 258.

[6] Brit. Med. Jour., Oct. 22, 1898.

[7] Ann. des Mal. de l'Oreille, Sept., 1898.

[8] Am. Jour. Med. Sci., April, 1899.

[9] Penna. Med. Jour., July, 1899.

(1) Paralysis of the arm of the affected side with muscular weakness of the legs; (2) exaggeration of the patellar reflex on the diseased side; (3) conjugate deviation of the eyeballs toward the unaffected side. But, according to Gradenigo, these symptoms are not constant. He then presents notes of 5 cases of cerebellar abscess, with instructive data.

Otitic cerebellar abscesses have been reported by A. D. McConachie,[1] J. O. Green,[2] and H. E. Jones.[3] A cerebellar tumor, the existence of which was demonstrated by the x-rays, has been reported by A. Church.[4] [Might not the presence of a cerebral abscess be thus located?]

The operative technic in otitic cerebral abscess has been well set forth by Gradenigo [5] and William Hill.[6]

Otitic meningitis has been written upon by Grunert, Stadelman, W. Milligan,[7] and others; and cerebrospinal meningitis of acute otitic origin has been reported by G. Hauser.[8]

MORBID GROWTHS OF THE TEMPORAL BONE.

Noma.—A case of noma involving the auricle, the mastoid, and the condyle of the jaw with thrombosis of the lateral and longitudinal sinuses, in a boy of 2, is reported by G. M. Smith.[9] The bacilli of Schimmelbusch (cancrum oris) were found by cultures made from the longitudinal sinus.

Chloroma in the Temporal Bone.—O. Lubarsch [10] has presented an account of the autopsy and microscopic examination in a case of chloroma of the temporal bone, in a boy of 6. Chloroma of the temporal bone always affects the hearing. The color of the tumor is probably due to local changes in the pigment of the blood. "In cases of chloroma a thorough search should be made for the bacillus of tuberculosis, with special attention to the faucial tonsils, which furnish the avenue of entrance to the tubercle-bacillus more frequently perhaps than is suspected."

Osteoma of the Mastoid.—P. Borras y Torres [11] reports the occurrence of an osteoma of the mastoid in a boy of 11. No reason could be assigned for the formation of the tumor. Under ether, the skin was everted over the bony tumor and the latter removed with hammer and chisel. Entire recovery ensued promptly. This is said to be the third osteoma of the mastoid ever reported. The other 2 are those reported by Vandervoort and Politzer.

Fibromyxoma of the Mastoid Process.—Benignant tumors of the mastoid process are among the greatest rarities. R. Eschweiler [12] has reported the occurrence of a fibromyxoma of the mastoid process in a woman 38 years old. The patient stated that she had suffered from otorrhea in the right ear since childhood, which had received no attention. Twelve years previous to the time of Eschweiler's examination a surgeon had curetted the mastoid region. This spot soon healed. Eight years ago an internal swelling of the entire region about the right ear occurred, and, after great pain, spontaneous rupture of the parts behind the ear took place. Since that time a constant discharge of pus has come from the fistula in the mastoid process. The mastoid having been opened, a grayish-red tumor, the size of a hen's egg, was found in the cavity of the mastoid, attached by a pedicle to the innermost part of the cavity. The tumor was removed, but no trace of cholesteatoma was found. It was seen, however, that the mastoid antrum, the middle ear, and the external auditory canal were thrown into one common cavity. The cavity was lightly packed with silver gauze, and the skin-wound stitched above and below. Granulations near the pedicle's attachment and elsewhere in the cavity were touched with silver nitrate, and the cavity kept lightly packed with silver gauze. In 6 weeks the wound-cavity under this treatment became smooth and covered with epidermis, and has remained so.

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[1] Med.-Chir. Soc. of Maryland, Phila. Med. Jour., Mar. 25, 1899.

[2] Tr. Am. Otol. Soc., July, 1898.

[3] Brit. Med. Jour., Oct. 22, 1898.

[4] Am. Jour. Med. Sci., Feb., 1899.

[5] Ann. des Mal. de l'Oreille. Oct., 1898.

[6] Practitioner, Oct., 1898.

[7] Brit. Med. Jour., Oct. 22, 1898.

[8] Ann. des Mal. de l'Oreille, May, 1899.

[9] Brit. Med. Jour., Sept. 10, 1898.

[10] Archiv. of Otology, Oct., 1898.

[11] Coll. de Med. de Barcelona. Ann. des Mal. de l'Oreille, Jan., 1899.

[12] Arch. f. Ohrenh., Sept., 1898.

Carcinoma of Ear.—H. B. Robinson[1] reports a case of squamous-cell carcinoma following chronic (26 years) suppurative otitis media in a woman of 46. The tumor seemed to have originated in the external auditory canal from the epithelial proliferation induced by the chronic irritation of the purulent discharge from the middle ear. Radical antrectomy and mastoidectomy gave little or no relief, and the patient passed from observation.

Sarcoma of the Internal Ear.—A. Druault [2] reports an interesting and rare case of sarcoma of the internal auditory canal, with fatal termination, in a girl of 17.

Fracture of the Skull-base.—Photiadès and Gabrieldès [3] report a case of deafness and disturbed equilibrium and pulsatile exophthalmos in consequence of a fracture of the base of the skull.

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[1] Jour. of Laryn., Rhinol., and Otol., Mar., 1899.

[2] Ann. des Mal. de l'Oreille, Aug., 1898.

[3] Ibid.

DISEASES OF THE NOSE AND LARYNX.

BY E. FLETCHER INGALS, M.D., AND HENRY G. OHLS, M.D.,
OF CHICAGO.

Local Anesthetic for Operations.—E. L. Vansant [1] uses a freshly made solution of desiccated extract of *suprarenal gland* as follows: The extract is kept in 5-gr. capsules, and when required, the contents of one capsule are agitated in a 2-dr. vial with 1 dr. of the following menstruum: Boric acid, 11 gr.; camphor water, distilled water, each ½ oz. The mixture may be filtered or, after the sediment settles, the clear liquid may be used. He precedes the application by one of 5% cocain or 4% eucain. The applications have not caused any toxic symptoms. In acute and subacute inflammatory conditions this method gives more prolonged relief than cocain alone.

J. W. Miller [2] reports a case of highly developed **hypertrophy of the thyroid gland** in a negro, the voice and respiration being unaffected. (See Fig. 97.)

Exophthalmic Goiter and Tonsillitis.—J. E. Nihill [3] reports a case of unilateral exophthalmos in a woman, aged 25 years, with enlarged thyroid, rapid heart action, muscular tremor, and insomnia. Several months' treatment with iron, digitalis, bromids, and belladonna, with rest and regulated diet, did not produce decided improvement. A severe attack of tonsillitis was followed by marked improvement in all the symptoms. Nihill suggests the formation of an antitoxin by the tonsillitis, which had a curative effect on the "toxin"-producing exophthalmic goiter.

Goiter Operation.—Briau and Sargnon [4] report the removal by Prof. Poncet of an enormous cystic goiter from a male cretin, aged 33 years. General myxedema followed in spite of the retention of part of the thyroid. Three and a half months' treatment by Baumann's iodothyrin, 30 cgm. daily, caused perfect cure. Colin Gray,[5] in removing half of the thyroid from a case of exophthalmic goiter, almost completely severed the recurrent laryngeal nerve. The ends were sutured with the finest Hagedorn needle and catgut. The voice was restored after a week's hoarseness.

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[1] Phila. Med. Jour., Feb. 25, 1899.
[2] Memphis Med. Monthly, Aug., 1898.
[3] Intercol. Med. Jour. of Austral., Dec. 20, 1898.
[4] Am. Jour. of Med. Sci., Nov., 1898, from Gaz. Hebd. de Med. et de Chir., 1898, No. 52.
[5] Ibid., from Intercol. Med. Jour. of Austral., 1898, No. 5.

Acquired Tongue-tie.—Arthur Powell[1] reports the case of a Bengali boy, aged 8 years, who had complete adhesion between the right side of the tongue and the lower lip, due to ulcerative stomatitis of scorbutic origin, the corresponding teeth having fallen out.

Aberrant Thyroid Tumors.—Reintjes[2] describes the removal of a globular mass of thyroid tissue from a fibrous capsule at the base of the tongue between the epiglottis and the circumvallate papilla. No thyroid could be felt in the normal position. Symptoms of myxedema followed the operation. A. Baurowicz[3] removed a thyroid tumor filling the lower part of the larynx and attached to the lateral and posterior walls. The patient was a woman, aged 21 years, who had previously had a goitrous tumor removed from the neck and tracheotomy performed. The diagnosis was confirmed by the microscope.

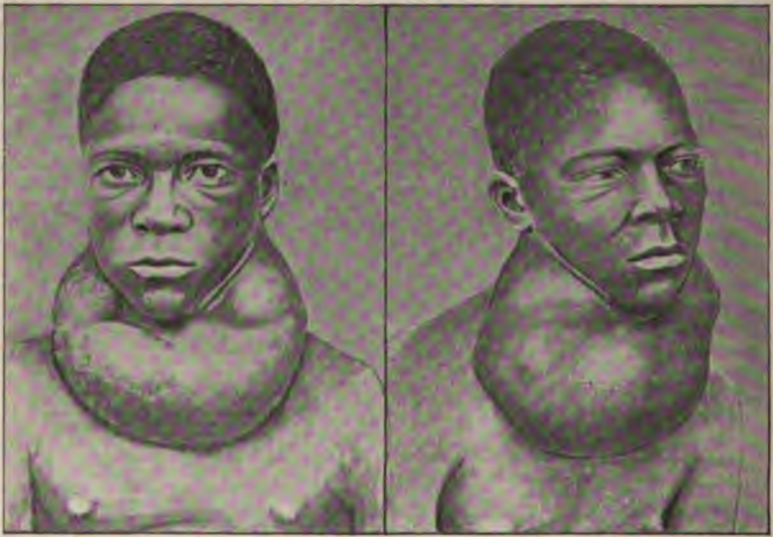

Fig. 97.—Hypertrophy of the thyroid gland (Memphis Med. Monthly, Aug., 1898).

Black Tongue.—Furniss Potter[4] presented a patient—male, aged 48—with a dark patch on the base of the tongue just anterior to the circumvallate papilla, consisting of epithelial and food debris, apparently pigmented and adherent to hypertrophied papillæ, which latter terminated in hair-like processes about ¼ of an inch long.

Urticaria of the Tongue.—J. L. Goodale and H. F. Hewes[5] described fully an interesting case of urticaria of the tongue associated with deficient hydrochloric acid secretion by the gastric membrane.

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[1] Brit. Med. Jour., Dec., 1898.

[2] Monats. f. Ohrenheilk., Sept., 1898.

[3] Jour. of Laryn., Rhin., and Otol., June, 1899, from Arch. f. Laryn. u. Rhin., Bd. viii., Heft 2.

[4] Jour. of Laryn., Rhin., and Otol., Jan., 1899.

[5] Am. Jour. of Med. Sci., April, 1899.

The patient was a shoemaker, aged 38 years. The attacks of urticaria had recurred at intervals for 4 years. The last 2 years the tongue had been constantly sore, with circular red raised patches on the dorsum. There was occasional reddening of the mucous membrane of the lips and gum. He had no external urticarial eruption at any time. The digestive trouble had existed 8 years and consisted in deficiency of acid, with pain after eating, and regurgitation of food. The patient also became torpid an hour or two after eating. The patient was addicted to the excessive use of tobacco, and drank alcohol after eating. Improvement in the condition of the digestion followed treatment by strychnin, belladonna, and capsicum. After 2 weeks' treatment by salol, 5 gr. after meals, the urticaria disappeared. Benzonaphthol also would check the eruption, but not control it entirely. Later, the patient took salol, 3 gr. t. i. d., for 4 successive days in each week, with no return of the eruption during several months.

Urticaria of the Soft Palate.—M. B. Lederman [1] reports a case of severe external urticaria in a man with edema of the soft palate and uvula, caused by contact with a jellyfish when bathing in the sea. The attack began with chilliness, nausea, and weakness soon after the bath. Ice in the mouth gave much relief. In 6 hours the swelling had almost disappeared.

Calculus of the Uvula.—J. L. Goodale [2] reports a case of calculus removed from the anterior surface of the uvula of a 2-months-old colored baby. It had caused obstruction to nasal breathing, when recumbent, since birth.

Tonsillotomy.—W. H. Peters [3] devised a powerful snare, with a scissors-like handle, for the rapid excision of the tonsils. When the tonsils are only moderately enlarged, he first grasps them with a special forceps passed through the loop of the snare. No. 10 piano wire is used. [In special cases when the tonsil can be readily engaged in the snare, this is a satisfactory instrument.]

Secondary Hypertrophy of the Tonsil.—F. E. Hopkins [4] reports the complete removal of the tonsils of a young girl, followed, after 4 months, by acute tonsillitis with much enlargement of the left tonsil. The tonsil was again removed. Dr. Wright's examination showed it to be simple hypertrophy. Dr. Hopkins could find only 14 reports of similar recurrence of the tonsil, but no microscopic record.

Thiol for Tonsillitis.—W. A. Wells [5] found daily local applications of thiol, 10% in glycerin, with hourly 2% thiol spray, in cases of acute tonsillitis caused prompt resolution of the inflammation and subjective symptoms in from 24 to 48 hours. It is especially indicated to relieve the distressing subjective throat and nasal sensations in persons of a gouty diathesis.

Tonsillar Calculus.—W. G. A. Robertson [6] noted a calculus weighing an ounce that escaped from the tonsil of a man, aged 50, during sleep. Some years before he had been subject to tonsillitis and had an adenitis that ended in suppuration and cellulitis of the side of the neck. After free incision the glandular disease subsided, and he had no active disease during 2 years immediately preceding the discharge of the calculus.

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[1] Laryngoscope, Sept., 1898.

[2] Boston Med. and Surg. Jour., Dec., 1898.

[3] Jour. Am. Med. Assn., Mar. 11, 1899.

[4] Laryngoscope, Feb., 1899.

[5] Phila. Med. Jour., April 15, 1899.

[6] Brit. Med. Jour., Jan. 7, 1899.

Albuminuric Tonsillitis.—George F. Keiper [1] reports a case of hemorrhage from a deep ulcer of the tonsil in a man, aged 32 years, who had serious disease of the kidneys with albuminuria. He classifies the case as one of albuminuric tonsillitis, and considers the changes in the vessels of the tonsils similar to the changes that occur in the vessels of the choroid in albuminuric retinitis.

Mycosis of the Pharynx.—Dundas Grant,[2] moved by the well-known effect of salicylic acid in destroying masses of cornified epithelium, applied a 25% solution of this acid in alcohol to the spots of mycosis with better results than other applications had given. Between these applications the patient applied a 5% solution of salicylic acid in rectified spirits with a little glycerin.

Antistreptococcous Serum in Septic Pharyngitis. — W. G. Spencer [3] reports rapid improvement and cure of a severe septic streptococcous infection of the pharynx by injection of antistreptococcous serum. The patient, a man, aged 21, was admitted to the hospital nearly unconscious, with great pain and difficulty in swallowing, edematous swelling of the left side of the neck, and pain over the heart, which gave a pericardial friction-sound. The temperature rose to 103° F.; the pulse was 120 and weak; respirations, 130, quiet. Incision in the neck gave exit to thin, sanious fluid. Streptococci pyogenes were found in this fluid and also in mucus from the throat. Eight days after the sickness began and the day the diagnosis was made 10 cc. of streptococcous antitoxin were injected and repeated twice the next day and once the second day after. Improvement was remarkably rapid in every way. Upon the third day after the first injection the temperature dropped to normal. Constipation was followed by 5 to 8 loose passages daily after the injection. The pulse continued rapid, but the pericardial friction-sounds cleared up within a week. The good effect of the serum in suitable cases, and the importance of diagnosis of streptococcous infection are noted.

Retropharyngeal Abscess.—Johann v. Bokay [4] studied 614 cases of retropharyngeal abscess, including adenitis, among 289,176 sick children between the years 1854 and 1893 in the Stefanie-Kinderspital, Budapest. Bokay, Sr., held that all the retropharyngeal abscesses were due to suppuration of the superior deep lymphatic glands of the neck. As to etiology, scrofulosis, or at least a feeble constitution, is frequently observed. Of 8 syphilitic children, 6 were treated for simple adenitis and two for retropharyngeal abscess. Acute infectious diseases are an infrequent cause. Traumatic abscesses are also rare. Infection through the lymphatics from febrile conditions of the mouth, pharynx, nasal cavities, and middle ears is often observed. The abscess develops in from 2 days to 8 weeks, 25% being between the ninth and fourteenth days. The dysphagia, nasal voice, dyspnea, and prostration increase with the development of the abscess. The head is held rigidly inclined, a little to one side. Deep adenitis can be detected at the angle of the jaw. Palpation of the pharynx is essential for early diagnosis. The author prefers to have the child reclining when he introduces his finger, palmar surface upward, into the pharynx. The abscess usually occupies one lateral half of the pharynx. Spontaneous rupture of the abscess occurred only 19 times in 144 cases. The mortality observed was about 6%. He preferred opening the lower part of the abscess with a pharyngotome or concealed bistoury. This operation may be repeated if necessary. The author considers Burckhart's external operation more suitable for traumatic abscess, or that consecutive upon inflammation of the cervical vertebras.

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[1] Laryngoscope, Nov., 1898.

[2] Lancet, Nov. 26, 1898.

[3] Lancet, Jan. 21, 1899.

[4] Trans. by Edward M. Plummer in Ann. of Gyn. and Pediat., May, 1899.

The Futility of Gargling.—Sanger[1] brushed the tonsils with methylene-blue and found that water thoroughly gargled returned uncolored from the mouth. He also dusted the throat with flour and had the patient use a gargle containing iodin; the blue-color reaction appeared only on the velum palati and on the tongue. The inference was that it is futile to attempt to medicate the pharynx and tonsils by means of gargles.

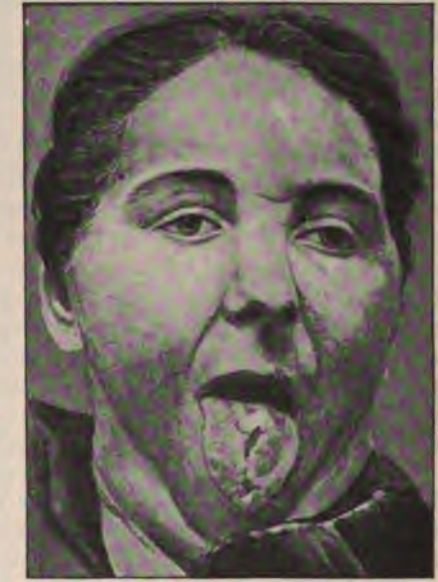

Fig. 98.—Gumma of the tongue (Laryngoscope, May, 1899).

A Coin in the Esophagus.—De Santi,[2] by skiagraph, found a coin wedged in the esophagus of a 3-year-old child, where it had remained 11 days without local symptoms. The child complained of pain and tenderness in the right iliac fossa. The coin was removed by a coin-catcher.

Gumma of the Tongue.—William S. Gottheil[3] reports a gumma of the tongue of a woman 24 years of age. The tumor increased rapidly in size until the eighth week, when it presented the appearance shown in figure 98. The date ulceration began was not noted. No secondary symptoms having occurred 11 weeks after the appearance of the tumor, the diagnosis of gumma was made. Treatment consisted of potassium iodid, 90 gr., with small doses of mercury. The tumor decreased rapidly, the ulcer healed, and the induration could hardly be detected in 3 weeks. The enlarged submaxillary lymphatics were reduced one-half in size.

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[1] N. Y. Med. Jour., April 8, 1899. [2] Jour. Laryn., Rhin., and Oto., May, 1899.

[3] Laryngoscope, May, 1899, from Internat. Med. Mag., Dec., 1898.

Nasal Hydrorrhea.—St. Clair Thomson [1] limits the term nasal hydrorrhea to cases of excessive watery discharge with symptoms varying from the intense irritation of hay-fever to a passive and almost painless discharge. It is especially to be differentiated chemically and clinically from the discharge of cerebrospinal fluid from the nose. In the latter case local interference is liable to cause infection. The treatment of nasal hydrorrhea is similar to that of hay-fever. He advises moderation in the use of the cautery, and recommends dietetic and climatic treatment. From an analysis of Bosworth's 18 cases described in 1889 the writer considers 13 of the cases were **cerebrospinal rhinorrhea.**

Fracture of the Nasal Bones.—T. Passmore Berens [2] obtained a good result in an old fracture of the nose with much flattening of the nasal bridge and broadening of the alæ. Under ether anesthesia an adhesion of the septum was cut. With a modified Adams' septum forceps, the outer blade being protected by rubber tubing, he refractured each nasal bone thoroughly. It was necessary to supplement the use of the forceps on one side with blows of a mallet upon a steel bar covered with tubing and laid over the bone. Owing to the septal distortion, the forceps were used to fracture the perpendicular plate of the ethmoid and the cartilaginous septum. A specially long and thin, perforated, cork splint was introduced into each nostril. For three days the external dressing consisted of a plaster cast of a normal nose. Then a Fox glass clip with extra broad nasal ends was applied. Figures 99–102 show the condition before and 6 months after the operation.

Epistaxis.—Bernard Berens [3] dips a small tampon of sterilized lamb's wool into boric-acid powder or nosophen, compresses it into a small ball, and inserts it into the bleeding nostril by forceps. B. Scheinkman [4] devised a rubber air-bag with a probe to assist in its insertion into the nares. By compressing the external part and rolling it upon itself the nasal part is distended with air, causing pressure upon bleeding vessels.

Climate of Colorado.—Melville Black [5] notes that the average relative humidity in Denver is about 50 % less than at the sea-level. Thus, people going to Denver from the coast experience a dilation of the superficial capillaries. Until vasomotor control is established this causes a mild rhinitis. [High altitude and dry atmosphere usually act unfavorably on nasal diseases.]

Deflected Septum.—F. H. Bosworth [6] reaffirmed his satisfaction with the saw operation for removing the projecting part of the septum. It is a simple procedure, not involving confinement to the bed or house.

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[1] Laryngoscope, Nov., 1898.

[2] Laryngoscope, March, 1899.

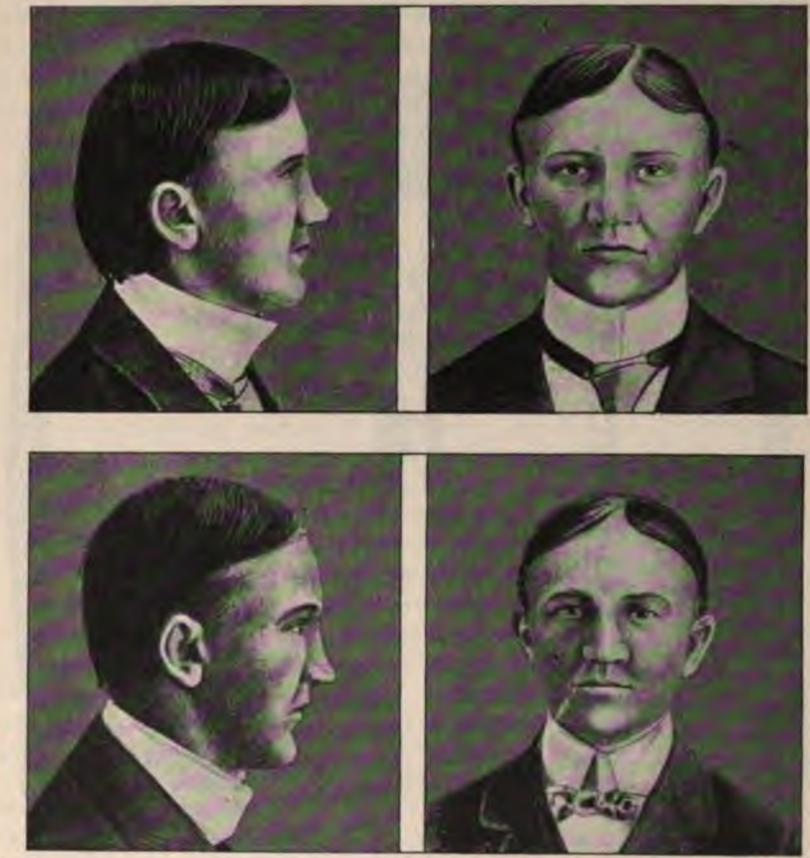
[3] Laryngoscope, Sept., 1898.

[4] Med. Record, May 27, 1899.

[5] Jour. of Amer. Med. Assn., March 4, 1899.

[6] Laryngoscope, June, 1899.

It seldom requires a plug to control hemorrhage. At the same time he lauds the Ingals' method of dissecting up a flap of membrane to cover the defect after the removal of the projecting cartilage in the cases suitable for this operation. Morris J. Asch [1] noted the supreme importance of overcoming the resiliency of the cartilage, for which he devised the operation and instruments described in the YEAR BOOK for 1899. He avoids fracturing the bony deviations of the vomer or ethmoid, but leaves such irregularities for subsequent operation by the chisel or electric trephine. John O. Roe [2] fractures the osseocartilaginous portion of the septum by a forceps made with a ring blade, the other blade fitting into the ring. By rotating the blades the septum is readily brought into the median line. A cotton dressing is worn in the formerly occluded side for from four to six days. The resiliency is further over-



Figs. 99-102.—Fracture of the nasal bones, showing the condition before and six months after the operation (Laryngoscope, March, 1899).

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[1] Ibid.

[2] Ibid.

come by incisions obliquely through the cartilage, and in various directions as required. Spurs and ridges, exostoses, etc., should usually be removed beforehand by the saw or cartilage knife, or they may be left until healing has taken place. Arthur W. Watson [1] incises the septum below the longitudinal ridge and in front of the anterior projection when it is present. If thickened at the angles, a wedge-shaped piece is removed. The upper portion is then pushed into the opposite nostril, where it hooks over the base of the septum. If the projection involves the vomer, it is fractured with the Adams' forceps. The projecting lower part, if redundant, can be removed with the saw or left until the septum is healed. To support the tip of the septum, he inserts a pin obliquely from the concave side over the perpendicular incision and into the septum behind. E. B. Gleason [2] inserts a thin saw along the floor of the nose beneath the deviation. The tissues are sawed rather deeply in a horizontal direction. The direction of the sawing is then changed rapidly to a nearly vertical direction. The saw should be kept exactly parallel to the septum to cut around and not through any part of the

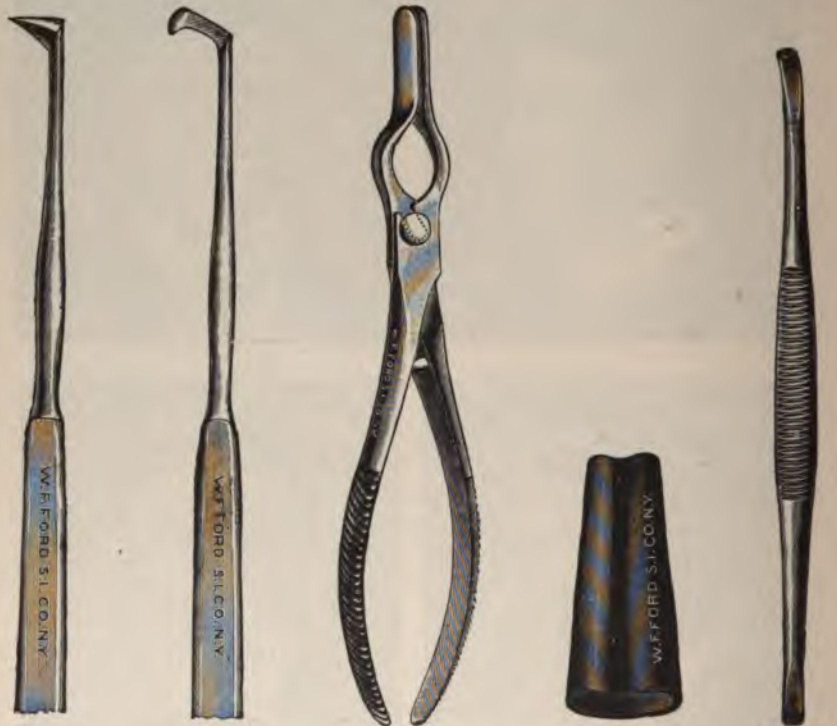

Fig. 103. Fig. 104. Fig. 105. Fig. 106. Fig. 107.

Figs. 103-107.—Instruments used in treatment of deviations of the septum.

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[1] Ibid.

[2] Ibid.

deviation. A bistoury may be used to lengthen the incision if necessary. The flap is then forced by the finger into the wider nostril. This operation can be quickly performed. Redundant tissue can be removed at the same time or preferably a month or two later. If nonunion results, the edges may be freshened by a curet. He inserts a tube for 24 hours or longer, but usually finds hemorrhage trifling. Beaman Douglas[1] notes the importance of examining the floor of the nasal cavity and determining the relation of the deflected septum to the maxillary spine. In angular deflections close to the floor he says there is frequently dislocation of the cartilaginous septum from the spine—a condition that is often concealed by fibrous tissue corresponding to a callus. Under ether he punctures the septum posterior to each line of deflection by an angular spear-knife. (Fig. 103.) Then a probe-pointed knife (Fig. 104) is inserted through the puncture and the whole length of the deflection is slit. These incisions allow the cartilage to be moved freely to either side. Elastic bands in the submucosa are then broken by twisting the segments of the septum with a forceps similar to Adams'. (Fig. 105.) A hard-rubber tube (Fig. 106) is then introduced into each nostril, and the patient put to bed for 24 hours. Previous to this operation exostoses and enchondromas should be removed, and the turbinate on the free side should be reduced if excessive. M. Escat,[2] to prevent perforation of the septum when operating for deflection, injects sterilized water beneath the mucous membrane of the concave side with a hypodermic syringe. This dissects the membrane away from the cartilage. The section of the cartilage is then made upon the obstructed side.

Splints After Septum Operations.—J. M. Stucky[3] noted two cases of injury to the turbinates caused by Asch tubes; the lower turbinates being fractured or bent and adherent to the floor of the nose, the middle turbinate being pressed against the septum in one case and in the other fractured and freely movable. He criticizes the Asch tube as too short, too wide, and too large at the external opening. He prefers tubes of dental rubber, wide at the bottom, narrow at the top, with the external ends a little larger than the internal.

Abuse of the Electric Cautery.—H. Hallbrook Curtis[4] believes that the thermocautery should not be used on the cartilaginous septum on account of the liability to perforation sooner or later, with a dry, irritable condition of the membrane. In cauterizing the turbinates he would protect the septum by tin-foil.

Primary Sarcoma of the Nose.—Thos. J. Harris[5] describes 5 cases from personal experience, and reviews 57 cases collected since Bosworth reported 41 cases in 1889. In conclusion he submits: (1) The cause of sarcoma of the nose is in no wise determined; (2) degeneration of nasal polypus is strongly probable; (3) sarcoma can occur at any age, but is most liable to occur between 40 and 50; (4) all forms of sarcoma are found in the nose, the round-cell and spindle-cell appearing with about equal frequency; (5) sarcoma can spring from any portion of the nose, but the cartilaginous septum is the most common site; (6) sarcoma develops insidiously, but obstruction to breathing and epistaxis are the chief symptoms; (7) sarcoma is seen most commonly as a pinkish red tumor, rather soft, provided with a pedicle; (8) the prognosis is bad—over one-half die; (9) the round-cell variety is the most fatal form; (10) operation is indicated at the earliest moment. In many cases a radical operation is the proper method, but in cases in which the entire tumor is thoroughly exposed to view, and in reach, an internasal operation only is justifiable.

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[1] N. Y. Med. Jour., Aug. 6, 1898.

[2] Gaz. Hebd. de Med. et de Chir., May 26, 1898.

[3] Laryngoscope, Sept., 1898.

[4] Laryngoscope, Jan., 1899.

[5] Phila. Monthly Med. Jour., June, 1899.

Papilloma of the Septum.—Richmond McKinney[1] removed a true papilloma, the size of a coffee-bean, and presenting a warty, mammillated appearance, from the anterior and upper part of the septum of a medical student 24 years of age. Diagnosis was confirmed by William Krauss, Jonathan Wright, and Beaman Douglass.

Atrophic Rhinitis.—George L. Richards[2] notes a cure of severe atrophic rhinitis of one nostril following the removal of obstruction of the other nostril due to a deflection of the septum. He attributes the cure to the restoration of the normal nasal breathing, and he thinks that atrophy is liable to occur in a nostril that "does all the work."

Antidiphtheric Serum for Ozena.—Holger Mygind[3] found that subcutaneous injection of antidiphtheric serum in cases of genuine ozena had an immediate and very marked effect upon the mucous membrane of the nose. After 25 hours the crusts are discharged more easily and are mixed with mucus or mucopurulent secretion. The mucous membrane later becomes moist and red and swells considerably. Lasting improvement has followed the second or third injection in all cases. The improvement is due to the serum itself, not to the contained toxins. The only ill effects were painful swelling at the site of injection, different eruptions, and in two cases joint affections. Garnault[4] reports a case of syphilitic ozena in which 5 injections, of 5 cc. each, of antidiphtheric serum were followed by severe pain in the limbs, fever with delirium, and very unfavorable general condition for 3 weeks. Fernand Cathelin[5] cured a case of ozena by injections of antidiphtheric serum, 5 cc. triweekly for 3 months, followed by weekly injections of 5 cc., which dose was later doubled. In 6 months 315 cc. were injected. Locally, antiseptic douches were used daily.

Fibrinous Rhinitis.—J. M. Hunt[6] reports a case, in a physician, of fibrinous rhinitis, presenting a thick white membrane, with abundant watery discharge. Upon tearing off the membrane a bleeding surface remained. From the complete absence of constitutional symptoms he did not suspect diphtheria; but a fortnight later the patient presented a typical severe diphtheria with membrane on the tonsils followed by extensive paralysis. Another case, in a little girl, presented a thin but firmly adherent nasal false membrane, without constitutional symptoms. Microscopic examination showed streptococci and staphylococci, but no Löffler bacilli. This patient had "tonsillitis" a month before, followed by paralysis of the palate. A third case had mild fibrinous rhinitis, from which 2 cases of diphtheria developed, 1 fatal. He would summarize as follows: (1) While admitting that other bacteria besides diphtheria-bacilli may give rise to membranous exudation in the nasal passages, the vast majority of cases of fibrinous rhinitis are due to Löffler bacilli. (2) That it is impossible on clinical grounds alone to distinguish fibrinous rhinitis from mild nasal diphtheria. (3) That all cases of fibrinous rhinitis should be regarded as diphtheria until the contrary has been proved by reliable bacteriologic investigation. J. Price-Brown[1] concludes: (1) That nondiphtheric pseudomembranous rhinitis does sometimes occur, and, although a very rare disease, it is probably as frequent as primary nasal diphtheria. (2) That on clinical grounds alone it is possible, in a majority of cases, to distinguish it from genuine diphtheria. (3) That, owing to a possible mistake in diagnosis, isolation in all cases should be imperative, until a reliable bacteriologic examination can be made. R. Lake[2] reports a case of membranous rhinitis in a man aged 54 years. At the first examination, in 1897, the obstruction was confined to the right side and was caused by some whitish flakes of apparently coagulated secretion, together with moderate swelling. Ordinary treatment relieved the obstruction at that time. In February, 1898, the nose was filled with a whitish, gelatinous mass. Bacteriologic examination obtained a pure culture of staphylococcus pyogenes aureus. Formalin, ½%, was too irritating. Cautery with trichloracetic acid gave some relief by contracting the tissues.

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[1] N. Y. Med. Jour., March 4, 1899.

[2] Jour. of Laryn., Rhin., and Otol., Dec., 1898.

[3] Jour. of Laryn., Rhin., and Otol., Aug., 1898.

[4] Med. Age, Aug. 10, 1898, from La Semaine Med.

[5] New Orleans Med. and Surg. Jour., Jan., 1899, from l'Echo Med. du Nord, Nov. 13, 1898.

[6] Jour. of Laryn., Rhin., and Otol., Oct., 1898.

Rhinolith Obstructing the Nasal Duct.—William H. Poole[3] removed a hypertrophy of the lower turbinate from a woman, 24 years old, who had had catarrh for years. Secondary hemorrhage was controlled by a sponge tampon, which was later removed with difficulty. At that time a large rhinolith was discovered firmly embedded in the lower meatus. The flow of tears through the nasal duct had long been obstructed by the mass. J. A. Thompson[4] removed a rhinolith that had caused severe headache. The eye was injected and the pupil almost closed, responding very slowly to light. The pain and injection of the eye simulated iritis.

Foreign Bodies in the Nares and Nasopharynx.—G. A. Fischer[5] found portions of a laminaria tent in the nasopharynx of a woman who complained of an offensive nasal discharge for over a year. Later, another piece was removed from the inferior meatus, where it was concealed by the lower turbinate. The tent had been originally introduced into the nasal duct, part withdrawn, and the rest forced into the naris. Max Thorner [1] with a snare introduced behind the palate removed an enormous mucous polypus, weighing $1\frac{5}{8}$ oz. and attached by a slender pedicle to the right lateral wall of the pharynx just in front of the orifice of the Eustachian tube.

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[1] Jour. of Laryn., Rhin., and Otol., May, 1899.

[2] Laryngoscope, Sept., 1898.

[3] N. Y. Med. Jour., July 9, 1898.

[4] Jour. of Am. Med. Assn., Jan. 14, 1899.

[5] Austral. Med. Gaz., Feb. 20, 1899.

Hay-fever.—S. Solis-Cohen [2] reports great relief from hay-fever in his personal use of the Burroughs & Welcome 5-grain tabloids of suprarenal substance, averaging 5 tabloids daily. When particularly exposed in the country, a double dose was necessary at times. [We have promptly relieved several cases of hay-fever with a solution of adrenals, but in some cases it is of little value. The most improvement is to be expected when the mucous membrane is highly congested. We have found the following prescription very satisfactory: Adrenals (Armour), 1 dram; boric acid, 16 grains; cinnamon water, 4 drams; camphor water (hot), 1 ounce; distilled water (hot), sufficient to make 2 ounces. Mix and macerate for 4 hours; filter. Use as a spray to nose 4 or 5 times a day.] Carolus M. Cobb [3] notes the three classical factors in the etiology of hay-fever—the influence of pollen as an external irritant, a susceptible nervous system, and a diseased condition of the nasal mucous membrane. As to the influence of pollen, he notes that the farming class are not so subject to hay-fever as dwellers in the city, though the former are much more exposed to the irritation of "hay-seed" and the pollen of various weeds. The excessive mental work in proportion to muscular exercise on the part of a large proportion of city dwellers renders the nervous system more susceptible to local irritations. Of 42 cases of hay-fever Cobb noted 22 in which nasal disease was a prominent factor, 10 in which it was a contributing cause, and 10 in which no disease of the nose or nasopharynx existed between the attacks. The only conditions requiring operation were hypertrophy of the anterior ends of the turbinate, polypi, and, possibly, thickening of the convex side of slight deviations. To reduce the hypertrophies, he removes a small amount of tissue by cutting forceps. Operations upon other diseased conditions may be necessary and may prevent an attack for a year or two, but the conditions above indicated are the only ones having a causative relation to hay-fever. To stop the attack, he applies the following solution, credited to Sir Andrew Clark: Bichlorid of mercury, 1 grain; muriate of quinin, 30 grains; glycerin and carbolic acid (B. P.), 1 ounce. If this does not cause marked improvement in 3 or 4 days, he applies 15% chromic acid to the lower and middle turbinate and to the anterior one-third of the septum. This stops the itching and sneezing. In addition general treatment is important, especially remedies to control vasomotor dilation, such as zinc phosphid, belladonna, quinin, and hyoscyamus. L. B. Lochard [4] terminated promptly a severe attack of asthmatic hay-fever in a man, aged 47 years, who had suffered with hay-fever 6 summers, by removing, with a snare, the anterior extremity of the right inferior turbinate, which was edematous and filled the anterior naris. J. Price-Brown,[1] in 1895, at one sitting cauterized both inferior turbinates of a lady of 25 years for hay-fever. A false membrane formed, extending throughout the nares, causing stenosis. Three days later he removed it without hemorrhage. Recovery was rapid, and the relief from hay-fever complete. In 1896 she had no hay-fever, but it returned in 1897 with swelling of the middle turbinates, the inferior ones being normal. Both middle turbinates were then cauterized. False membrane again filled the nares as before, and was removed. [The cauterization of both turbinates at one sitting is generally followed by excessive reaction, and is, therefore, rarely advisable.]

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[1] Med. News, Jan. 21, 1899.

[2] Phila. Med. Jour., Aug. 13, 1898.

[3] Phila. Monthly Med. Jour., May, 1899.

[4] Laryngoscope, Nov., 1898.

Early Diagnosis of Pertussis.—H. L. Wagner[2] claims that the bacteria of the pertussis may always be found in the nose or pharynx before the cough begins, and later may be found in the whole upper respiratory tract. The bacterium when full grown is 2 or 3 times as long as broad, rounded and somewhat thickened at the ends, and is divided apparently in the middle. It is surrounded by a capsule not unlike Friedländer's pneumococcus. Antiseptics are valuable in treatment.

Acute Febrile Catarrh with Inflamed Glands of Head and Neck.—J. Snowman[3] describes a condition which he has observed in 6 cases. It begins suddenly with rigors and pain in the back, pyrexia, rapid pulse, and profuse sweating. The temperature rises to 103° or 104° F., the pulse is 130, the tongue becomes coated, the urine scanty and high colored, and there is intense headache. Within 24 hours the headache is replaced by a series of very tender areas over the whole scalp, each one corresponding to an inflamed gland, which varies from the size of a pea to that of a chestnut, and are found over the parietal region at the end of the hair, over the occipital region, and the posterior cervical glands. There is usually also an acute tonsillitis of simple type. In a few days the symptoms abate and the glandular swelling subsides, leaving the patient somewhat prostrate. In many cases relapses occur. This disease corresponds to epidemic catarrhal fever or influenza, though it is not apparent why it should involve the glands in that manner. Quinin did not prevent recurrence. He refers to a report, by Park West, of an epidemic of catarrhal fever with enlargement of the carotid glands in Eastern Ohio in 1893–'96.

Nasal Neuroses.—W. Posthumus Meyjes[4] considers swelling of the middle turbinate the chief origin of nasal reflexes. Anterior swelling, a small polypus in that locality, or a submucous swelling of the septum opposite, will maintain asthmatic and other neuroses. E. Harrison Griffin[5] relates 2 cases in which nightmare disappeared after the removal of nasal obstruction. Walter A. Wells[1] notes the increase in the eosinophile leukocytes of the blood, the result of sympathetic irritation during attacks of nasal reflex neuroses. Helter[2] analyzed the recorded observations of nervous and mental manifestations occurring in connection with nasal disease. He distinguished between the symptoms of stenosis and those due to reflex, and considered them reflex (1) if associated with a nasal lesion without stenosis or transient stenosis; (2) if accompanied by no reflex phenomena; (3) if it disappears with the removal of the lesion, especially when obstruction still persists; (4) if it is of a paroxysmal character; (5) if there is a definite area of hyperesthesia; (6) if the symptom, absent, reappears upon contact of the probe; (7) if the symptom, present, disappears upon the use of cocain. On the other hand, the evidence is in favor of a stenosis causation if the symptom in question (1) is always associated with marked obstruction; (2) if the obstructive lesion is of a permanent kind, as from hypertrophy; (3) if the patient suffers from the effects of the stenosis, such as anemia and malnutrition, which could well account for the symptom; (4) if the symptoms disappear only upon the return of normal nasal respiration; (5) when the symptoms can be best explained on the hypothesis of an obstruction; (6) when the special reflex tests fail. The author adds records of 10 cases of neuroses cured by the treatment of various associated nasal lesions.

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[1] Jour. of Laryn., Rhin., and Otol., May, 1899.

[2] Boston Med. and Surg. Jour., Sept. 8, 1898.

[3] Brit. Med. Jour., Dec. 10, 1898.

[4] J. Laryn., Rhin., and Otol., Dec., 1898.

[5] Phila. Med. Jour., Dec. 31, 1898.

The Relation of Asthma and Bronchitis to Nasal Diseases.—Greville Macdonald[3] thinks asthma and bronchitis are not due to reflex when associated with nasal obstruction, but rather are the result of direct attack upon the hyperesthetic bronchial tubes by irritant particles inhaled. And when associated with nasal polypi, he would attribute asthma and bronchitis to an inflammatory condition common to the nose and bronchial tubes. Other nervous phenomena, such as chorea and epilepsy, can probably be accounted for by the serious after-interference with easy respiration. [On the other hand, not a few cases appear to demonstrate that these troubles are reflex.]

Nasal Vertigo.—Otto J. Stein[4] saw a patient with great hypertrophy of the turbinates and aural catarrh who suffered with frequent attacks of vertigo without complete loss of consciousness. Touching the middle turbinate with a probe caused vertigo. Turbinotomy of the right middle turbinate followed by cauterization of the inferior turbinate caused early cessation of the vertigo. Previous treatment of the aural disease locally, with iodids and bromids internally, gave only temporary relief.

Postnasal Spray Instrument.—G. F. Hawley[5] recommends the spray instrument (Fig. 108) for medicating the nasopharynx; the tube being introduced through the naris. The amount of spray used is regulated by the set-screw.

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[1] Phila. Med. Jour., Aug. 20, 1898.

[2] Am. Jour. of Med. Sci., Dec., 1898.

[3] Jour. of Laryn., Rhin., and Otol., Sept., 1898.

[4] Chicago Med. Recorder, Nov., 1898.

[5] Medicine, April, 1899.

Eustachian Catheter.—D. Braden Kyle[1] reviewed the method of catheterization of the Eustachian tubes through the mouth, and illustrates the instruments he prefers. (Fig. 109.)

Arguments for and against catheterization

THROUGH THE MOUTH.	THROUGH THE NOSE.
1. Does not require a special catheter.	1. Abnormities require different shaped instruments.
2. Absolutely aseptic.	2. Cannot possibly be aseptic.
3. One method for all cases.	3. Different methods necessitated by abnormities.
4. Certainty of insertion of catheter into Eustachian tube assured by actual view of the instrument *in situ.*	4. Educated sense of touch the only guide.
5. Invagination of mucous membrane seen and avoided.	5. Invagination cannot be determined.
6. Air or medicaments thrown in direct line of tube.	6. Impetus of air generally at an angle to long axis of tube.

Anesthesia for the Adenoid Operation.—Frank W. Hinkel[2] relates the sudden death of a 6-year-old boy after the removal of adenoids. About 1 ounce of *chloroform* had been inhaled. The pulse and respiration stopped just after the cureting was finished. He also tabulates a list of 17 deaths reported since 1892. Only 1 death from ether in this operation is on record, while nitrous oxid and ethyl bromid have no mortality. His conclusions are: (1) Statistics show exceptionally high mortality from chloroform anesthesia in the operation for the removal of lymphoid hypertrophies of the pharynx. (2) The observations of

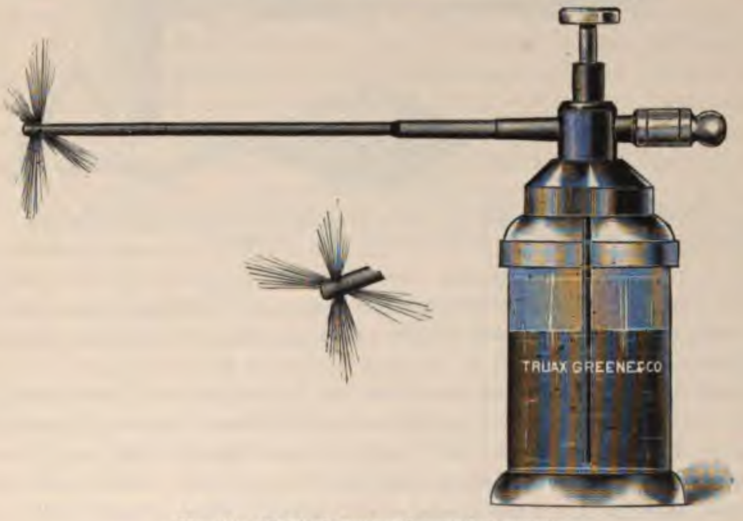

Fig. 108.—Hawley's postnasal spray instrument.

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[1] Phila. Med. Jour., Sept. 24, 1898.

[2] N. Y. Med. Jour., Oct. 29, 1898.

the Vienna pathologists show that sufferers from adenoids frequently belong to an abnormal constitutional type that has been found peculiarly susceptible to chloroform narcosis. (3) In view of the statistical and pathologic data presented, the general use of chloroform in the operation for hypertrophied tonsils or nasopharyngeal adenoids is inadmissible. [The danger in taking chloroform for the adenoid operation is due usually to the upright position of the patient as advocated by some operators, to the difficulty in respiration on account of the presence of adenoids, or to inhaling the vapor of chloroform without sufficient air.]

H. V. Würdeman[1] says most of his cases in children under the age of adolescence have been operated upon under chloroform anesthesia, assisted by *suggestion;* a few whiffs of the vapor, together with suggestion to sleep, being sufficient to control nearly all children. D. Bryson Delavan[2] notes the importance of 2 principles in dealing with adenoids —thoroughness and humanity. He prefers a blunt forceps, such as Löwenberg's as modified by Gleitsmann and Hooper, with complete anesthesia. [With this we thoroughly agree. A thorough operation for adenoids without anesthesia would sometimes cause more pain than amputation of the thigh.]

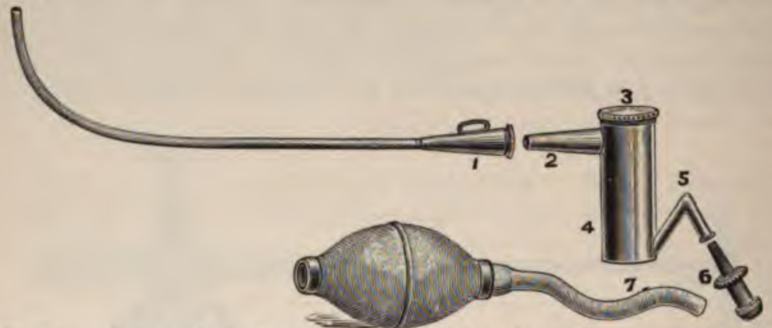

Fig. 109.—1, Catheter of coin-silver; 2, tip on which catheter fits; 3, screw-cap; 4, receptacle for holding fluid; 5, tip bent at an acute angle to prevent fluid from running back in the rubber bulb; 6, hard-rubber cap fitted into (5), to which the rubber bulb (7) is attached.

Emil Mayer[3] has used the Schleich mixture, No. 1, with satisfactory results in 70 adenoid operations: Chloroform, 45 cc.; petroleum-ether (boiling-point 60° to 65° C.), 15 cc.; sulphuric ether, 100 cc. It is best given by the rapid drop method on an ordinary chloroform mask covered with gauze, flannel, and oiled muslin, with a hole cut in the center. About 4 drams are required, and complete anesthesia is produced in from 4 to 6 minutes. The stage of excitement is absent. Consciousness is restored in from 4 to 6 minutes after the operation. [We have found the inhalation of chloroform vapor mixed with oxygen from a gas-bag satisfactory. The only objection is that it requires an extra assistant to manage the apparatus.]

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[1] Laryngoscope, Oct., 1898.

[2] N. Y. Med. Jour., Oct. 29, 1898.

[3] Jour. Amer. Med. Assn., Mar. 4, 1899.

Adenoids in Rosenmüller's Fossa.—J. Lockhart Gibson [1] has frequently removed adenoids from Rosenmüller's fossa, in children under 14 years of age, by means of a steel nail guided by the sense of touch. And from older patients, in quite a considerable percentage, he removes masses clearly seen in this fossa by means of a Löwenberg's forceps. Generally, the roof of the fossa is the seat of the growth, always at a higher level than the eustachian orifice. It is of the utmost importance to clear out this space fully on account of the liability of lymphoid tissue there pressing upon the eustachian prominence. Bridges of tissue extend between the tubal prominences and posterior nasopharyngeal walls, but these seldom lie entirely within Rosenmüller's fossa. He describes the case of a 16-year-old girl whose hearing was impaired. Upon inspection a general thickening of adenoid tissue on the roof of the nasopharynx and in Rosenmüller's fossa was detected. The removal of tissue by Löwenberg's forceps, guided by the mirror, restored the hearing of the right ear. The hearing of the watch by the left ear remained as before, about 27%. After removing one forcepsful from the roof and posterior wall of the left Rosenmüller's fossa the hearing was restored to normal. [We have found the masses in a large percentage of cases, and have removed them by Löwenberg's forceps guided by the sense of touch.]

Adenoid Operations.—J. Holinger [2] prefers bromid of ethyl anesthesia and the Gottstein curet, using a wedge-shaped gag to control the head. He calls attention to the projection of the second cervical vertebra into the nasopharynx when the head is extended or thrown backward. This causes an acute angle, which is difficult to enter with a curet. The child is placed on the right knee of the nurse; the operator stands to the right of and behind the child, holding the head under his left arm. Stooping over, he introduces the instrument behind the soft palate with his right hand and then lowers the head of the child with the mouth widely opened. The instrument must be pressed perpendicularly upward, and the scraping is done in this position. Jas. E. Newcomb [3] notes the necessity of diagnosing the form of nasal insufficiency due to abnormal *prominence* of the *anterior cervical arch*. When this rare condition is associated with adenoids, removal of the latter will only relieve the obstruction in proportion to the obstruction due to the adenoids. The prominence mentioned interferes more or less with the removal of adenoids, so that smaller instruments must be employed. A marked projection of the vertebra in childhood becomes less prominent in adult life. Becigneul [4] reports a case of adenoids in a child, aged 7 years, cured by injection of *Roux's serum* for a supposed diphtheric angina, which proved, on culture, to be staphylococcous only. Heurtaux reports a case of adenoids with deafness cured within 3 weeks by serum injection. Eustace Smith [5] reports the cure of *laryngeal stridor* that had existed from birth in a well-nourished infant with evidences of rickets and adenoid vegetations. At the age of 8 months the adenoids were removed, and the crowing ceased 3 weeks later. A. C. Getchell[1] considers adenoids rarely, if ever, the cause of **deafmutism,** the latter being usually due to disease or malformation of the internal ear or central nervous system, whereas adenoids generally develop in the third or fourth year. Removal of adenoids is more liable to allow improvement in speech than in hearing. Adenoids and enlarged tonsils should be removed (1) if there is any probability that they contribute to the deafness; (2) if they make more difficult the acquirement of spoken language in the oral pupil; (3) to improve the health of the child. [A considerable number of cases of adenoids develop before the end of the second year, and some are congenital.] H. Gradle[2] recommends a new guillotine, with a curved knife and fenestrum similar to that of Schuetz, but with a Wyeth handle. He prefers incomplete anesthesia and erect posture in the operation for adenoids. (Fig. 110.)

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[1] Intercol. Med. Jour. of Austral., Feb. 20, 1899.

[2] Chicago Med. Recorder, Mar., 1899.

[3] Ann. of Otol., Rhin., and Laryn., Feb., 1899.

[4] Gaz. Med. de Nantes, Jan. 1, 1899.

[5] Lancet, Aug. 27, 1898.

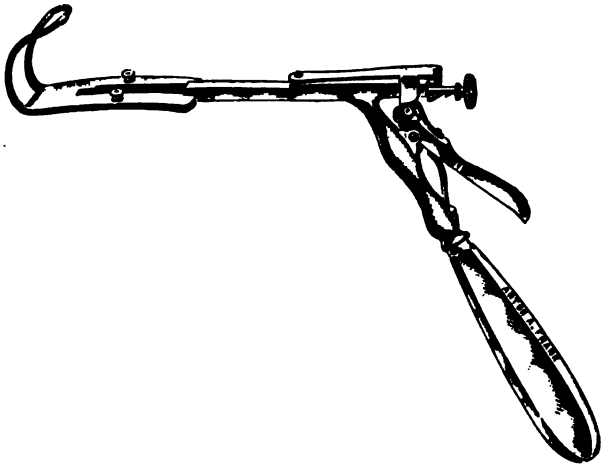

Fig. 110.—Gradle's guillotine.

Signs of Latent Empyema.—Dundas Grant[3] and Lennox Browne adopted from Lermoyez the following classification of the signs of latent empyema that leaves little to be desired: Presumptive: Unilateral discharge, intermittent discharge, infraorbital pain, subjective fetor, upper molar caries, pus in middle meatus, mucous polypi, lateral swelling of cheek. Probable: Return of discharge on bending forward or to opposite side, opacity on transillumination. Certain: Puncture and transufflation, puncture and irrigation, puncture and aspiration (1) in inferior meatus; (2) in alveolus; (3) in canine fossa; (4) in middle meatus with catheterization, inflation, irrigation.

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[1] Jour. Am. Med. Assn., Mar. 4, 1899. [2] Chicago Med. Recorder, Jan., 1899.
[3] Jour. of Laryn., Rhin., and Otol., Feb., 1899.

Etiology.—Frederick C. Cobb,[1] from a study of 30 cases, believes that the antrum heals readily if the cause of the suppuration is removed. He relates a case in which suppuration was maintained by some soluble rubber injected through a root canal into the antrum. In another case a 12-year molar had irrupted into the antrum. Seven of the cases were due to acute catarrhal conditions. [His observation of the speedy cure of empyema of the antrum does not correspond with that of most observers, though it suggests the importance of thorough exploration, providing the suppuration does not cease within a few months after efficient drainage is established.] For chronic empyema DeRoaldes and King[2] employ the Luc operation as follows: The mucosa is incised 15 mm. above the neck of the canine tooth and extending backward to the maxillary tuberosity. Then the periosteum is incised and reflected upward as high as the infraorbital canal. The bone is then cut away with a trephine or chisel, and the greater part of the anterior wall is resected with cutting forceps. All diseased tissue is removed and 20 % solution of zinc chlorid is applied. An opening not more than 1 cm. in diameter is then made through the antronasal wall of the lower meatus, and a funnel-shaped, soft-rubber tube is introduced from the antrum into the naris. The soft parts are closed over the bone defect and the mucous membrane is carefully sutured. After 4 or 5 days antiseptic irrigation is practised and daily repeated, the tube being withdrawn through the naris in from 12 to 20 days. Later irrigation can be carried out through an eustachian catheter introduced into the sinus. DeRoaldes[3] reported 5 cases operated upon, in each case a radical and speedy cure being obtained. J. C. Mulhall[4] devised a tube, ¼ of an inch in diameter, with beveled antral end, and a lid working on a pivot for drainage of the antrum. (Figs. 111, 112.)

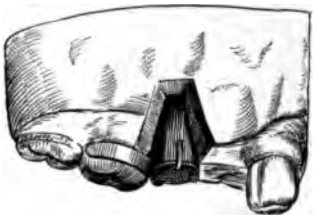

Fig. 111.—Drainage-tube *in situ* (Laryngoscope, Nov., 1898).

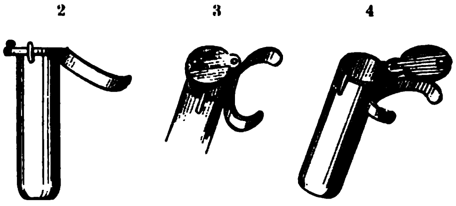

Fig. 112.—2, Showing the beveling of antral end; 3, showing the lid partially open and the band for attachment to adjacent tooth; 4, showing the lid entirely open and the band (Laryngoscope, Nov., 1898).

Foreign Bodies in the Antrum.—J. Price-Browne[5] had a patient who wore a silver tube through the canine fossa for 3 years. Then a tooth was extracted and a hard-wood plug introduced; the patient being instructed to make them as needed, tapering and fitting tightly. Later, two plugs disappeared in succession during sleep. The opening in the canine fossa was then enlarged and 2 large plugs were removed. They did not taper.

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[1] Boston Med. and Surg. Jour., Dec. 1, 1898.

[2] N. O. Med. and Surg. Jour., Dec., 1898.

[3] Phila. Med. Jour., June 3, 1899.

[4] Laryngoscope, Nov., 1898.

[5] Can. Pract., April, 1899.

Epithelioma of the Antrum.—Wendell C. Phillips [1] found a cauliflower-like growth protruding from the antrum into the mouth of a man, 58 years of age, who had had several teeth removed and the antrum opened several years before to relieve pain. The opening had not healed. The projecting mass had never bled freely. It was removed by the cold snare, the antral opening enlarged, and similar tissue filling it was thoroughly curetted, and the cavity packed. Later, the cavity completely healed, and no recurrence had taken place in 14 months. Microscopic reports indicated that the original mucous polypus had developed epithelioma on its surface. Early and thorough operations on all benign cases of antrum disease are advocated.

Frontal Sinus Disease.—Sheier [2] passed a probe apparently into the frontal sinus in 30 cases. X-rays showed the probe in one of the ethmoid cells in all the cases except 5; in these it was discovered in the frontal sinus. John W. Farlow [3] removed the anterior extremity of the middle turbinate with a cold snare, releasing 3 or 4 ounces of thick, tenacious fluid that had caused an immense retention tumor at the inner angle of the eye, which was forced forward, downward, and outward. The fluid had been collecting since an attack of scarlatina 10 years before, but had not been painful until recently. Later, flocculent secretion was washed out of the antrum through a puncture in the inferior middle meatus. There was thickening of the superior maxilla, but no nasal discharge before the operation. Lennox Browne [4]

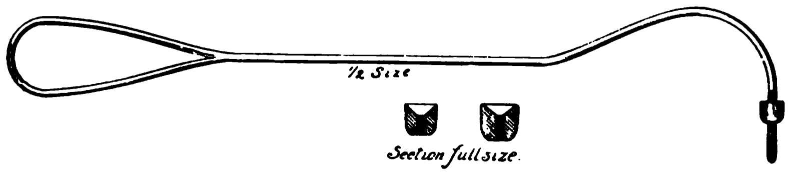

Fig. 113.—Lennox Browne's infundibulum probe, curet, and bodkin (Jour. of Laryngol., Rhin., and Otology, Jan., 1899).

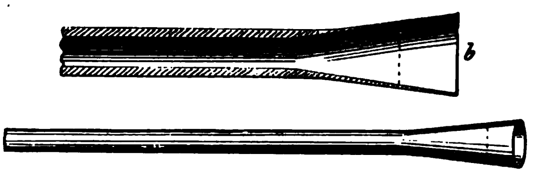

Fig. 114.—Lennox Browne's infundibulum drainage-tubes: *b*, Funnel in section (full size), to show thinner walls; the dotted lines indicate where to reduce funnel, so as to prevent puckering when in position (Jour. of Laryngol., Rhin., and Otol., Jan., 1899).

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[1] Jour. of Lar., Rhin., and Oto., July, 1898.

[2] Boston Med. and Surg. Jour., Feb. 2, 1899, from Arch. Int. de Laryn., Rhin. and Otol., April, 1898.

[3] N. Y. Med. Jour., Dec. 17, 1898.

[4] Jour. of Laryn., Rhin., and O., Jan., 1899.

uses the infundibulum probe, curet, and bodkin for diagnosis of frontal sinus disease (Fig. 113), and a drainage-tube introduced from the frontal sinus through the infundibulum or through an artificial passage into the nose (Fig. 114).

Ethmoid Disease.—R. Ovens[1] notes 3 stages of ethmoid disease: (1) Extracellular myxomatous degeneration; (2) intracellular degeneration; (3) purulent ethmoiditis. The symptoms of the first stage are those of acute rhinitis, with watery discharge, sneezing, asthma, headache, and neuralgia. In the second stage there are increased intracellular pressure, with thin or mucopurulent discharge, intraorbital pressure, severe frontal headache, asthenopia, aprosexia. The middle turbinate is enlarged, causing pressure on the septum and blocking the middle meatus. There is polypoid degeneration of the mucous membrane of the turbinate. In the third stage pus appears at the outer or inner surfaces of the middle turbinate, passing into the posterior nares. Treatment of the acute stage is the same as for acute rhinitis: a copious hot saline douche twice a day. In the second stage intracellular tension should be relieved by opening or uncapping the cells, and removing the anterior projection by the snare. When pus forms, the cell-walls should be broken down, converting them into one cavity with free drainage. William Lamb[2] says the appearance described by Woakes as cleavage of the middle turbinate is really a swollen ethmoid cell pressing against the middle turbinate. It may be the bulla ethmoidalis or the hypertrophied unciform process. The writer has seen the same conditions when there was no suppuration. J. H. Fisher[3] reports a unique diffuse cellulitis of the orbit with threatened sloughing of the upper eyelids, complicating a case of empyema of the ethmoid cells. Free incision and drainage into the nose effected a cure. Transillumination of the frontal sinus and antrum was negative.

Asthma and Ethmoid Disease.—Henry L. Swain[4] noted the common occurrence of hyperesthetic mucosa with thin blood-vessel walls and vasomotor responsiveness in neurotic subjects. Hypertrophic changes occur in the ethmoid mucous membrane, followed by relaxation and edematous tissue. With a diseased or susceptible bronchial mucous membrane the conditions are then present for an asthmatic attack. E. Fletcher Ingals[5] noted the occurrence, or at least the claim, of an intelligent patient that asthmatic spasm occurred in only 1 lung corresponding to nasal disease on the same side. Another patient, subject to asthma on the ground level, was free from attack on the sixth floor of a building. F. H. Bosworth[6] found the whole question turned upon the integrity of the respiratory function of the nose. He found that purulent ethmoiditis does not cause asthma, while inflammatory disease does. F. G. Finlay[7] reports a postmortem on a girl, aged 15 years, who had had a purulent nasal discharge for several weeks, with no aural disease.

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[1] Canadian Pract., Aug., 1898.
[2] Birmingham Med. Rev., Dec., 1898.
[3] Jour. Laryn., Rhin., and Otol., June, 1899, from St. Thomas' Hosp. Report, 1897.
[4] Phila. Med. Jour., June 3, 1899.
[5] Ibid.
[6] Ibid.
[7] Montreal Med. Jour., Nov., 1898.

She had intense headaches, with edema of the eyelids, temperature up to 108° F., followed by delirium and death. Postmortem revealed suppuration and necrosis of the ethmoid cells, orbits, and scalp; acute purulent meningitis, old suppuration in left antrum, cloudy swelling, and fatty degeneration of all organs.

Clinical Experience versus Experimental Research in Laryngology.—Felix Semon [1] maintains that neither the clinical nor the experimental method is infallible; but the accessibility of the larynx to the eye by means of the laryngoscope gives clinical experience a great advantage over that in diseases of other organs. On the other hand, experimental study of the larynx is not so far advanced as that of some other regions.

Autoscope.—E. Fletcher Ingals [2] had an autoscope made from a vaginal retractor, adopting the Kirstein curve and notch at the end to fit over the glossoepiglottic ligament, and at the same time leaving the lips of the retractor near the angle high enough to keep the patient's mouth open. He finds local or general anesthesia advisable; the latter necessary in children.

Aphonia.—William Finlay,[3] in 3 cases of functional aphonia, to exercise the vocal cords against resistance, introduced a noncutting laryngeal forceps between the cords, and kept the blades apart while effort was made to phonate. Good results followed in all, including 1 case in which endolaryngeal electricity had failed. Albert Abrams [4] finds that *freezing the skin* over the entrance into the larynx of the laryngeal branch of the superior laryngeal causes almost instantaneous relief of the aphonia. Sometimes it gives only a temporary relief, and may be repeated several times. Methyl chlorid or a spray of rhigolene may be employed. It may be used to advantage also in neuroses of the larynx, like laryngismus stridulus, spastic aphonia, and in the laryngeal crises of tabes. It apparently acts as a shock, inhibiting the nerve function for a variable period.

Dysphonia.—T. C. Christy [5] recommends *galvanism* for the relief of the dysphonia of professional voice users, as (1) easy of application; (2) soothing and agreeable to the patient; (3) relieves the congestion, pain, and irritation; (4) does not excite pain or spasm of the glottis or trachea; (5) relieves the swollen lymphatic gland; (6) cures more promptly than any other agent; (7) patients recognize its value, and return regularly for its application.

Speech Defects.—G. Hudson Makuen,[6] in the case of a civil engineer, aged 29, who had stammered since childhood, found the defect to consist in a spasmodic contraction of the muscles of the soft palate with sudden closure, during attempt at speech and vocalization, of the posterior palatolingual chink. The respiratory mechanism was trained in a few weeks' time to give the necessary supply of air for phonation regularly. The muscles were trained by appropriate vocal exercises at the same time, so that the patient could speak with distinctness, but in a somewhat staccato manner. Excitement increased the fluency of his speech. W. Scheppegrell[1] divides all forms of speech defect into paralalia, or defective speech, such as lisping, rhinism, etc.; and dyslalia, or difficult or spasmodic speech, as stammering and stuttering; not including alalia, or absence of speech. Paralalia is limited to those forms of speech defect in which there is defective or vicious pronunciation. Many cases are due to local causes, as hypertrophy of the pharyngeal or faucial tonsils, cleft palate, or defects of certain muscles, short frenum of the tongue, etc. These conditions are not aggravated by apprehension or psychic influences. Dyslalia is an intermittent functional disorder of central origin, with irregular spasmodic action of the muscles of articulation, or more rarely of phonation and respiration. He advises that children with such defects receive special training apart from other children whose presence aggravates the difficulty. The respiration must be regulated first, and abnormalities of the respiratory tract removed. But the most important is long daily practice in enunciating the difficult sounds. Whispering and singing may assist, and various plans are used for diverting the attention of the patient from the mechanism of speech.

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[1] Brit. Med. Jour., Oct. 2, 1898.
[2] N. Y. Med. Jour., Sept. 17, 1898.
[3] Brit. Med. Jour., Feb. 25, 1899.
[4] Therap. Gaz., Nov. 15, 1898.
[5] Jour. of Laryn., Rhin., and Otol., Dec., 1898.
[6] Phila. Med. Jour., June 3, 1899.

Falsetto Voice in the Male.—G. Hudson Makuen[2] observed that falsetto voice is due not only to the high position of the larynx, but also to the consequent unnatural adjustment of the cartilages of the larynx and to the effect which this adjustment has upon the vocal ligaments. In 1 case this voice developed in a boy, 15 years of age, following a severe laryngitis with aphonia. Electricity and local applications did not change the falsetto character. The boy did not notice anything peculiar in his voice, but regained a chest voice after a little instruction. Another youth of 17 years had pneumonia at 13 and again at 14 years of age, the change of puberty occurring during convalescence. The chest tone was lost, aphonic, and the higher tones became falsetto, causing a ridiculous combination of whisper and squeak. Various operations in the nose and throat caused no improvement in the voice. The writer observed that the larynx was drawn very high in the throat during phonation. Placing his left index-finger upon the base of the tongue he made a firm downward pressure, and at the same time with the right index-finger in the groove in the upper border of the thyroid cartilage externally the larynx was held in a fixed position and the patient told to say "oh," which he succeeded in doing in a low chest tone. He was soon able to hold the larynx in the proper position by muscular effort, and with two weeks' practice developed a fine, rich, chest tone. This muscle training is an important point, and is supplemented by massage of the larynx, tonics, and the correction of diseased conditions in the nose and throat. [This is apparently supported by the speedy results which we have frequently obtained in curing the falsetto voice by a method recommended by Mulhall at a meeting of the American Laryngological Association. It consisted in having the patient flex the head on the chest and hold the chin firmly downward, phonating in that position. Practice by this method, a few minutes daily, has overcome the falsetto voice in from 2 to 10 days.]

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[1] N. O. Med. and Surg. Jour., Aug., 1898.

[2] Jour. of Am. Med. Assn., Mar. 4, 1899.

Hysteria of the Larynx.—F. E. Hopkins [1] reported a case of hysteric larynx in an anemic and nervous girl. Beginning with a whoop, the vocal disturbance increased to a high pitched squeal. Later, the spasms became so violent that general anesthesia was occasionally necessary. Fluid extract of conium was given by Dr. G. M. Hammond without benefit. Finally, Dr. Hopkins introduced an intubation-tube. After coughing up 3 tubes quickly, 1 was retained a half-hour, resulting in a complete cure.

Spasm of the Glottis.—Hamilton Stillson [2] reports a case of spasmodic closure of the glottis upon inspiration in a painter, 30 years old, occurring during sleep. Upon touching the vocal cords with a probe severe spasm was induced, lasting about 30 seconds. The patient had a septal spur and hypertrophy of the turbinate. Treatment by removal of the spur and reduction of the hypertrophies caused complete disappearance of the spasm. [It would seem probable that the good results were of the same character as those so often seen in chronic laryngitis with slight congestion due to mouth breathing.]

Abductor Paralysis.—Samuel Lodge [3] removed the isthmus of the thyroid from a boy, aged 14, to relieve severe dyspnea due to the pressure of a goiter which caused bilateral abductor paralysis. Kalium iodid and thyroid had been given freely without improvement. After operation the dyspnea gradually diminished and disappeared after 8 months. The goiter also disappeared. For 7 years his breathing had been noisy after exertion, and especially so during sleep.

Laryngeal Edema.—C. C. Rice [4] reports 3 cases of edema of the larynx: 1 following circumtonsillar cellulitis; 1 due to electrocautery of a fibrous growth below the tonsil; another caused by a piece of wood lodged in the pyriform sinus. Two cases were associated with rheumatic glossitis. He added an analysis of 41 cases from the literature.

Prolapse of the Ventricle.—Lichtwitz [5] reports the prolapse of both ventricles of Morgagni at an interval of 2 months, in a pilot aged 39 years. In each case Lichtwitz removed the mass by cutting forceps under cocain. The voice became normal, but the patient had occasional pain in the throat.

Chronic Urticaria of the Larynx.—W. Freudenthal [6] saw a case of urticaria of the throat associated with dyspepsia in a man aged 59. At times there were one or more herpetiform prominences with edematous surroundings on the epiglottis. Sometimes it was deeply congested; at other times, pale. The patient described a sensation of itching, though at first he said it felt as if a foreign body were in the throat.

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[1] Laryngoscope, Feb., 1899.

[2] N. Y. Med. Jour., Jan. 7, 1899.

[3] Lancet, Feb. 4, 1899.

[4] N. Y. Med. Jour., Dec. 3, 1898.

[5] Jour. of Laryn., Rhin., and Otol., Mar., 1899, from Revista de Laryn., Barcelona, Oct., 1898.

[6] N. Y. Med. Jour., Dec. 31, 1898.

Intralaryngeal Papillomata in Children.—A. Rosenberg,[1] from a review of statistics, recommends—first, intralaryngeal treatment, patiently, so long as marked dyspnea is absent; failing this, to perform tracheotomy and then employ intralaryngeal treatment; and only in urgent and very severe cases to have recourse to thyrotomy. He especially commends the snare, and finds autoscopy sometimes of assistance.

Acute Membranous Laryngitis.—Sainsbury[2] performed tracheotomy on a child with severe dyspnea without visible false membrane. Bacteriologic examination of the pharynx showed no Klebs-Löffler bacilli, though 8000 units of antitoxin were given. After the removal of the tracheotomy tube the dyspnea was relieved by wearing an intubation-tube 12 hours.

Pachydermia Laryngis.—E. M. Light[3] saw a case of pachydermia with ulceration of the processus vocalis of the left vocal cord, in 1895, in a man aged 51 years. Sir Felix Semon confirmed the diagnosis. As the patient lived quietly in the country, it was not apparent why this disease should develop. He recovered within 12 weeks. The only remedy used was potassium iodid in 5-grain doses, t. i. d., for 3 weeks, after which the dose was reduced to 2.5 gr., as it caused headache.

Tuberculous Laryngitis.—W. Fowler[4] considers tuberculous laryngitis a disease of the cricoarytenoid joint primarily. This accounts for the cadaveric position assumed by the vocal cord, the joint being in a position of physiologic rest. The interarytenoid swelling is due to the capsular ligament being thin and loose in that position, but strong and supported by firm fascia behind and externally. In 40 or 50 autopsies of tuberculous laryngitis the seat of most extensive disease was invariably the cricoarytenoid joint. When ulceration was present, it was always near the joint and communicated with it. In many cases the arytenoid was a loose piece of necrotic cartilage. Jobson Horne[5] found the earliest changes in the lymphatics consist of proliferation of the parenchyma of the acini and efferent ducts and the formation of masses of small, round cells choking the ducts, the adjacent structures remaining intact. Giant cells are then formed by tubercle bacilli from the endothelial cells of the lymph-space, corresponding to the formation of lepra giant cells as observed by Paul Bergengrün. Thus, it would be expected that tubercular infiltration would more often begin in regions rich with lymphatics and glands. And clinically it is observed that the interarytenoid region, the posterior third of the cord, the ventricular band, and the epiglottis, being more richly supplied with glands, are also most commonly the seat of tubercular ulceration. Impaired movement of the vocal cords he considers due to myopathic changes in the muscle-fibers.

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[1] Jour. of Laryn., Rhin., and Otol., Jan., 1899.

[2] Lancet, Oct. 8, 1898.

[3] Lancet, Aug. 6, 1898.

[4] Inter. Med. Jour. of Austral., Oct. 20, 1898.

[5] Brit. Med. Jour., Oct. 22, 1898.

J. N. Mackenzie[1] divides **tuberculous neoplasms** as follows: (1) Granular hyperplasia (ordinary granuloma), which may be considered a conservative, natural effort to isolate the tuberculous from healthy tissue. (2) Papillomas in any part of the larynx, but more often on the posterior wall, the microscope not revealing any tuberculous tissue. (3) The true tubercular tumor in the trachea, independent of ulceration or of tuberculous infiltration, and covered with normal mucous membrane. These are very rare. The microscope shows tubercle-bacilli. Sir Felix Semon[2] found varying susceptibility to orthoform in different patients. To be effective, a solution of continuity of the tissues is necessary. The maximum effect is obtained in about 1 hour, and the effect lasts 3 hours. R. Lake[3] advocates the cotton-wool mop rather than a brush for making laryngeal applications, as cleaner and more efficient. For granular cords and superficial excoriation or ulceration he advises intratracheal injection. For edema with or without superficial ulceration, topic applications were confined to "paints," but scarification, or the removal of tissue by cutting forceps, will also be necessary, thus securing free drainage. Formic aldehyd or lactic acid should be used after all such operations. Deep ulcerations with or without edema will not tolerate lactic frictions or more severe procedures. Insufflations of iodoform or orthoform, then, are indicated both as soothing and partly curative. Later, as the condition improves, he uses friction with formic aldehyd. For injection he uses an emulsion of naphthalene, 3 %, in lanolin. George L. Richards[4] finds the application of parachlorophenol, 4 %, following the application of lactic acid, 25 %, and gradually increasing the strength of both solutions until the lactic acid is used pure, and the phenol, 10 %, gives better result than the lactic acid alone. This treatment caused some improvement in every case of ulceration with the formation of granulation. Thomas J. Gallagher[5] presents the following: (1) It is safe to allow the patient to use a mild solution of formaldehyd 1 : 500, 2 or 3 times a day. (2) The relief to the dysphagia is very marked, and in many cases formaldehyd is a good substitute for cocain. (3) Its most brilliant results are to be seen in the vegetative and ulcerative types. (4) It is the most satisfactory remedy he has ever used in infiltrative cases. (5) The results from the use of formaldehyd are probably due to its effect upon histologic tissues, as well as upon the bacilli themselves. (6) The stronger solutions, from 1 to 10 %, should be applied 2 or 3 times a week, as deemed expedient.

Carcinoma of the Larynx.—Felix Semon[6] reported the continued good health of C. Fleming, January 6, 1899, whose left vocal cord he removed for carcinoma on July 21, 1896. At the same time he reported the removal of both vocal cords of another patient for carcinoma on May 31, 1897, with recurrence.

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[1] Boston Med. and Surg. Jour., Sept. 8, 1898.
[2] Jour. of Laryn., Rhin., and Otol., June, 1899.
[3] Jour. of Laryn., Rhin., and Otol., Feb., 1899.
[4] Jour. Am. Med. Assn, Mar. 4, 1899. [5] Jour. Am. Med. Assn., Mar. 4, 1899.
[6] Jour. of Laryn., Rhin., and Otol., Mar., 1899.

Epithelioma of the Larynx.—Lennox Browne [1] reported a case of epithelioma of the larynx of 5 years' duration without impairment of the health. The patient is in his sixty-ninth year. His voice was lost in 1896. The whole left side of the larynx is infiltrated and immovable, presenting a large, irregular mass of somewhat heightened color and with a warty surface. The right cord was also involved, but was freely movable. With the exception of aphonia he suffered no inconvenience from the condition. There was no extralaryngeal glandular involvement. The patient has been subject for years to eczema, for which he had taken much arsenic. Operation was not advised, nor even removal of a small portion for microscopic examination, for fear active disease would result.

Foreign Bodies.—Walker Downey [2] located a pin in the larynx in 2 patients, and a coin in the esophagus in another by means of x-rays; the object in each case being otherwise impossible of detection. In 1 case the pin had remained impacted 5 months, and had ulcerated into the thyroid cartilage. It was removed by thyrotomy. The other pin was grasped in the right hyoid fossa with forceps and removed.

Gout of the Throat.—Barclay Baron [3] does not believe in the "entity" of gouty throat at all. Still, gouty people are more liable to a certain kind of sore throat—the kind that any one has whose excretory organs are not acting properly: tongue furred, urine containing oxalates, phosphates, or urates, and with constipation. He does not think the latter can be differentiated from the gouty ones. Gouty throat means large uvula, red palate, enlarged pharyngeal veins, granulations, enlarged tonsils, and congestion of the larynx with hoarseness. The treatment consists in causing the excretory organs to act, giving alkalies and digestives. Cure may be hastened by the judicious use of baths and mineral waters.

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[1] Jour. of Laryn., Rhin., and Otol., April, 1899.
[2] Brit. Med. Jour., Oct. 22, 1898.
[3] Jour. of Laryn., Rhin., and Otol., April, 1899.

ANATOMY.

By C. A. HAMANN, M.D.,
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BONES AND JOINTS.

The Sexual Differences of the Fetal Pelvis.—The sexual differences of the human pelvis Thomson [1] holds to be of congenital origin rather than a result of developmental requirements. Measurements and observations tend to show that certain sexual differences are well defined and can be early distinguished, such as the characteristic sexual form of the inlet already to be noted at the fourth month. In all other marked differences of sex the fetal true pelvis resembles its adult form most distinctly in the subpubic angle and greater width of the female sacrosciatic notch. The iliac splay and height of the iliac crest are, as in the full grown, greatest in the male. Proportional small pelvic breadth as compared to height marks the greatest variance from the adult and has heretofore been attributed to the narrow sacrum. Measurements of this bone, however, indicate a greater proportional width when compared to pelvic width than is found at mature age, thus contradicting the theory attributing the increase of pelvic width to the lateral growth of the supposed narrow sacrum. The increase of width is dependent upon the lateral growth of the posterior portion of the ilium.

The Articulation between the Fifth and Sixth Costal Cartilages in Man.—E. Fawcett [2] determined that this articulation was present in 50% of cases, occurring either as a schizarthrosis or fibrosis; its frequency and the higher developed type (schizarthrosis) is greater on the right side.

Congenital Absence of the Patella.—E. A. Wuth [3] reports a case of absence of the patella in a man of 35, in whose family the defect is hereditary. The tuberosity of the tibia was quite large. Wuth denies the commonly accepted view that the patella is a sesamoid bone which has resulted or been developed by friction of the tendon of the quadriceps upon the condyles of the femur. He bases his denial upon investigations in comparative anatomy and embryology, and states that probably the patella should be regarded as originally a process of the tibia, like the olecranon process of the ulna. [Though his speculations are of interest, yet his conclusions will scarcely be adopted by anatomists.]

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[1] J. of Anat. and Phys., Apr., 1899. [2] Anat. Anz., Bd. xv., No. 2 und 3, 1898.
[3] Arch. f. klin. Chir., lviii., 4, p. 900, 1899.

MUSCULAR SYSTEM.

The Connecting Substance of Smooth Muscle-fibers.—The connective substance between nonstriated muscle-fibers exists neither as an amorphous substance nor as intercellular processes, but, as found by Schaffer,[1] of a fibrous and alveolar reticulum surrounding each cell, and continuous with that of other cells and the fibrous envelop surrounding each muscle-bundle. Nuclei are of rare occurrence and widely scattered in the reticulum, and are probably the remains of the original formative cells of this network.

Three Rare Anomalies of the Biceps Brachii.—A. Stolowsky[2] records 3 rare anomalies of the biceps brachii distinct from Testut's classification of the numerous variations of this muscle. In case I. the right biceps presented an intermediate form between the normal biceps and a uniceps. On closer examination of this specimen the rudimentary tendon of the long head, 1 cm. long and 1 mm. broad, was found in the narrow, but deep, sulcus intertubercularis. After its exit from this sulcus it lost itself in the muscle-substance of the short head, from which it could not further be separated. A muscular slip, 3.5 cm. long, 4 mm. broad, and 3 mm. in thickness, arising near the longer process of the brachii internus, also joined the muscular belly of the short head. In connection with the 3 cases cited, as also in many normal subjects, Stolowsky describes the *fibræ arciformes musculi bicipitis*, as he prefers to term them. These arciform fibers, when present regularly, pass from the external border of the tendon of the short head, often as a 1 mm. broad tendon, to spread themselves over the capsular ligament; or, if a well-developed subdeltoid bursa is present, also over its anterior surface. They then continue to the under surface of the coracoacromial ligament. Occasionally, these fibers originate from a muscular portion of the short head of the biceps, and may themselves have a muscular belly. Their supposed function is to act as a tensor of the capsule. On the left side, with the exception of an aponeurotic connection of the 2 tendons of origin and the difficulty of a distinct separation of its 2 bellies, the muscle was in a normal condition. In case II., 5.5 cm. from the origin of the right biceps, a short tendinous slip, 1.5 mm. broad, and 4 cm. in length, branches from the short head, which, assuming a fanshaped formation in its upward course, passes between the fibers of the tendina arciformis musculi bicipiti, and spreads itself over the anterior surface of the capsular ligament. Somewhat further down on both sides, but more evident on the right, a small muscular slip, arising from the muscular belly, bridges over the tendon of the long head at its exit from the capsular ligament, and fuses with the upper border of the pectoralis major tendon. Within the tendon of the long head, which was soft and reddish in color, a canal communicated with the shoulder-joint. On the left side the tendinæ arciformes bicipiti were also noted. In case III. a tensor of the bursa musculi pectoralis majoris, ending in three fleshy digitations and arising from the lateral border of the short head of the biceps, the fibræ arciformes, and the coracobrachialis, was the rare anomaly noted.

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[1] Anat. Anz., Bd. xv., Nos. 2, 3, und 6, 1898. [2] Anat., Heft xxxix., S. 301, 1899.

Sarcolemma of Muscle-fibers.—It is almost universally stated in textbooks upon histology that the muscle-fibers of the heart are devoid of a sarcolemma. F. Glaser,[1] after making extensive investigations, particularly upon "fragmented" myocardium, believes that he has demonstrated the existence of a homogeneous nonnucleated covering of the fibers. This sheath is decidedly more delicate than the sarcolemma of skeletal muscles.

VASCULAR SYSTEM.

Example of a Large Opening Between the Two Auricles of the Heart Unconnected with the Fossa Ovalis.—Wardrop Griffith[2] describes 1 of the few cases of an interauricular opening anterior to the fossa ovalis. Its occurrence is noted in that portion of the auricular septum situated anterior to the termination of the crista terminalis, which in the normal heart is the thinnest portion of the septum. According to Born's view, the primary septum fuses with the endocardial cushion, dividing the common auriculoventricular aperture to form the auricular septum; the deficient approximation of these parts would account for this rare anomaly.

The Penetration of the Muscular Fibers of the Human Heart by Capillaries and the Existence in That Organ of Very Large Capillaries.—The peculiarities characteristic of the human heart-capillaries in penetrating the muscle-fibers and in their large size present themselves only in the adult stage. As this condition is absent in the early embryo, A. V. Meigs[3] assumes that during the development of the cardiac fibers the interfibrillar capillaries are gradually taken up within these fibers by a process of inclusion, and in the fully grown heart the relation of capillary to muscle-fiber affirms this view. The capillaries are found (1) in the intermuscular spaces, (2) indenting the muscle-fibers, (3) within and lying in the periphery of muscle-fiber, (4) within and lying in the center of muscle-fiber. Closely connected with the penetration of the capillaries is supposed to be the pigmentation of the heart-muscle, and the numerous nuclei usually attributed to cardiac muscle belong in part to the capillary endothelium within the fiber. The second peculiarity of these capillaries—namely, their large size—seems to indicate that they act as reservoirs for the blood during contraction of the heart. Both the penetrating capillaries and their large size are indicative of the great vascular supply of this organ.

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[1] Arch. f. patholog. Anat., Bd. cliv., S. 291.

[2] Jour. of Anat. and Physiol., Jan., 1899.

[3] Jour. of Anat. and Physiol., vol. xxxiii., part ii.

Nerves on Intracranial Blood-vessels.—L. Gulland[1] has confirmed the previous assertions of Obersteiner and of Huber, that nerves may be demonstrated on certain of the cerebral vessels. They form perivascular plexuses. Morrison has succeeded in finding them by making use of Sihler's hematoxylin method.

VISCERA.

The Morphologic Significance of Certain Fissures in the Human Liver.—The occurrence of accessory fissures on the inferior surface of the human liver bears a close relationship to this subdivided gland in the anthropoids. A. Thomson,[2] in examining this fetal viscus, noted their greater frequency at this stage, one or more being present in the total 24 specimens examined. Those more often present both in the fetus and adult are 2 oblique fissures in the right lobe with an anterolateral direction and a parallel course. In the gorilla a connecting fissure between their posterior extremities gives rise to an additional fissure and lobe. Anterior to the caudate lobe a fissure exists in all the anthropoids, and was found present in 37% of the specimens, both adults and fetal. In connection with these fissures small accessory lobes in the fetal liver were also noted. One of these on the right lip of the anterior extremity of the umbilical fissure could also be traced in the anthropoid apes.

The Form of the Empty Bladder.—A. Francis Dixon[3] ascribes to this viscus the shape of an inverted tetrahedron, whose apex at the urethral opening is truncated in the male by the impression of the prostate gland. Three borders all slightly convex and extending between the apex and the 2 lateral angles or points of entrance of the ureters limit the superior surface, which in the empty state of the bladder bulges into the pelvic cavity. Below these borders 3 surfaces converge toward the urethral opening. Of these, the posterior is the base, and the 2 inferolateral, which are separated anteriorly by a rounded border extending from the apex to the urethral opening, form together the anteroinferior surface.

Supplementary Note on the Development of the Human Intestine.—Concerning the displacement of the fetal intestine into the umbilical cord and its subsequent return, F. P. Mall[4] says that the former is attributable to the rapid growth of the liver, which, filling almost the entire abdominal cavity, tends to expel this portion of the alimentary canal. At a later date, with the rapid growth of the lower portion of the body, the abdominal cavity increases in size, and they again return, or are, as it were, sucked back to fill up this space.

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[1] Brit. Med. Jour., ii., 1898, p. 781.

[2] Jour. Anat. and Physiol., vol. xxxiii., new series, vol. xiii., part iv., July, 1898.

[3] Anat. Anz., Band xv., No. 21, 1899.

[4] Anat. Anz., Band xvi., No. 19.

Anatomy of the Intestine.—S. Stopnitzki[1] finds that the width of the mesentery (distance from the spine to the intestine) is not so great as usually believed; the greatest width is found at about the junction of the upper and middle third of the small intestine and not far from the end of the ileum. The position of the coils of intestine is inconstant and is dependent upon the position at which the mesentery is attached, upon the width of the mesentery, and upon the variations in size of the abdominal organs. [The influence of gravity, of intra-abdominal pressure and peristalsis must also be considered, and it is not surprising to find that the position occupied by groups of intestinal coils is quite variable, so that for practical purposes an attempt to define constant situations for intestinal coils is of no use.] Stopnitzki finds that there are no sexual differences in the relative length of the intestine, though the intestine of the male is absolutely longer than that of the female. Certain chronic diseases—*e. g.*, tuberculosis—diminish the length of the intestine. Racial differences have not been sufficiently investigated to justify positive statements.

Anatomy of the Esophagus and Aorta.—E. Mehnert[2] writes on the clinical significance of variations in the esophagus and aorta. He states that during life the esophagus is a nearly straight tube, and that the curvatures which are usually described by anatomists do not exist, being produced by postmortem changes. As one of the proofs of his assertion, he mentions the statement of Mikulicz that four-fifths of the tube has a vertical direction, as shown by esophagoscopy. Mehnert confirms the observations of Joessel, Velpeau, and v. Hacker that the esophagus gradually increases in caliber from above downward; the tube is slightly constricted where it passes through the diaphragm, but by no means to the degree indicated by Mouton, whose description has been followed by most recent writers. The most frequent constrictions of the esophagus are found at its beginning, at the bifurcation of the trachea, and near its termination. In addition to these constrictions, however, Mehnert finds as many as 10 others. The point of entrance of an esophageal artery always corresponds to one of these constrictions. The esophagus is to be regarded as segmented, and the spindle-shaped portion between the 2 constrictions may be called *enteromeres*. Mehnert finds, after a laborious investigation of the literature, that the location of strictures, produced by cicatricial contraction following the ingestion of corrosive fluids, corresponds very closely to the points of physiologic narrowing of the tube, for those parts of the esophagus which are constricted will suffer most from the corrosive fluid. If several strictures are present, they will be apt to correspond in number to the number of physiologic constrictions. Mehnert advises that attempts at the removal of foreign bodies from above be persisted in, rather than pushing them down, for one can never know the caliber of the tube below the point of lodgment of the foreign body. The smallest caliber of the esophagus that can still be regarded as normal is 10 mm. Mehnert has found that, in infancy, the thoracic aorta lies in the median line—*i. e.*, it is prevertebral. It gradually passes to the left, and in old age, as the result of loss of elasticity and increased length, it lies along the sides of the bodies of the vertebras—*i. e.*, further to the left and posteriorly.

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[1] Internat. Monatsschr. f. Anat. u. Physiol., xv., ii., S. 327, 1898.

[2] Arch. f. klin. Chir., Bd. lviii., 1899, S. 183.

LYMPHATIC SYSTEM.

Lymph-vessels and Glands of the Testicle.—Most,[1] using Gerota's method of injection, found that the testicle is extremely rich in lymphatics. The minute vessels surround the seminiferous tubules and unite to form larger channels, which run in the septums between the compartments of the organ. Most of the lymph passes to the corpus Highmorianum, and thence by way of larger vessels which form the lymphatics of the spermatic cord; part of the lymph enters a network of vessels beneath the tunica albuginea, which communicates with another network of vessels underneath the tunica vaginalis, and from both situations channels pass to the hilum of the testicle. From 4 to 6 trunks pass upward in the spermatic cord, lying upon either side of the spermatic vessels. Upon the right side they enter from 2 to 4 glands situated upon the inferior vena cava just above the bifurcation of the aorta; vessels leaving these glands then pass to other glands and lymph-channels between and behind the aorta and cava, and then enter the receptaculum chyli. Upon the left side the first glands are found near the aorta and left renal vein; from some of these glands efferent vessels pass to other glands, whose contents are poured directly into the receptaculum chyli. Most was able to fill the entire thoracic duct by injecting the testicle.

The Lymphatic Vessels and Glands of the Stomach and Their Importance in the Metastases of Carcinoma.—According to A. Most,[2] the greater part of the lymphatic vessels are directed toward the glands of the lesser curvature of the stomach. A portion empty themselves into the glands of the pyloric end of the greater curvature, and those of the fundus into the glands around the splenic hilum. All of these ultimately find their way to the lymphatic glands around the pancreas, cardia, and pylorus, toward which the lymphatics directed toward the lesser curvature flow are completely surrounded by a ring of lymphatic vessels. Injections into the gastric serosa could in no case be traced beyond these two circles, nor would injections into the duodenal serosa flow beyond the pyloric ring, while to those lymphatics in the esophageal serosa the circle formed no barrier. As to the mucosa, the lymphatic vessels communicate at both ends with the contiguous organs, but much freer at the cardiac end. Involvement of the pancreatic glands denoting involvement of other inaccessible retroperitoneal glands prognoses the failure of radical cure.

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[1] Arch. f. Anat. u. Physiol., Anat. Abth., 3 u. 4, S. 113, 1899.

[2] Arch. klin. Chir., Band lix., Heft i.

Number and Position of the Submaxillary Lymph-Glands.—H. Stahr[1] finds that these glands are not so variable in number and position as is usually stated. In newly born infants there are 2 or 3 submental and 3 submaxillary glands. From his examination of other regions occupied by lymph-glands, Stahr has reached the following conclusions: Lymph-glands occupy protected situations; if they are found between muscles, they are so placed that they are not subjected to pressure during muscular contraction. Every organism, every organ, and every region require a certain definite amount of gland substance, the distribution of which in separate glands depends upon the structures in the neighborhood.

NERVOUS SYSTEM.

The Sensory Distribution of the Facial Nerve in Man.—A. Francis Dixon's[2] conclusions as to the sensory nature of the chorda tympani and great superficial petrosal nerve are based upon the homology of these nerves to the respective internal mandibular and palatine branches of the facial branchial nerve of fishes. Both the chorda tympani and great superficial petrosal nerve are nerves of taste: the former supplying the anterior portion of the tongue, the latter the soft palate. Clinical evidence to some extent confirms this view, as in intracranial section of the roots of the fifth nerve the sense of taste is not impaired. All, if not most, of the fibers of both these nerves in man are probably concerned in the sense of taste. The chorda tympani contains no fibers conveying sensory impulses, and, as to the great superficial petrosal, this cannot positively be affirmed, but it probably does not contain them.

Structure of the Pacinian Bodies.—Various structures of the Pacinian bodies are noted by Guido Sala[3] in his research on the mesorectum of the cat. The capsular portion of the nerve may either persist as a main stem, issuing from which there are seen lateral branches, arching in button-shaped thickenings; or the nerve divides into 2 or more branches, terminating as the former. A peculiar and interesting form consisted in an accompanying individual nerve-fiber to the main nerve, which in the capsule divided dichotomously and surrounded the main trunk with a network.

Anatomy of the Lowest Portion of the Cord.—L. R. Muller[4] finds that the conus medullaris differs histologically from other parts of the cord. Large multipolar ganglion cells are not found in the anterior horns below the third sacral segment, though groups of these cells are found in the gray matter between the posterior and anterior horns. In the conus the posterior roots are much more numerous than the anterior. There is no posterior gray commissure below the second sacral

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[1] Arch. f. Anat. u. Physiol., Anat. Abth., vi., S. 144, 1898.
[2] Jour. of Anat. and Physiol., April, 1899.
[3] Anat. Anz., Band xvi., No. 8, 1899.
[4] Deutsche Zeitschr. f. Nervenheilkunde, xiv., 1898, S. 1.

segment. At times spinal ganglia on the posterior roots of the conus are situated within the dural sheath. Ganglion cells are sometimes encountered in the lowest posterior roots.

Origin of the Phrenic Nerve.—F. Sano[1] found that the motor fibers of this nerve arise in a long nucleus, located in the center of the anterior horn, and extending from the third cervical to the middle of the sixth segment. The sensory neurons originate in the ganglia on the posterior roots of the third, fourth, fifth, and sixth cervical nerves.

Upper Termination of the Direct Cerebellar and Ascending Anterolateral Tracts.—A. Bruce,[2] in an examination of the specimens in a case of ascending degeneration of these columns, found that the fibers of the direct cerebellar tract ended in the superior vermis, at the side of the lobulus lingualis. None of the fibers enter any of the nuclei of the vermis, nor do any of them pass to the cerebellar cortex. Most of them do not decussate, though a considerable number cross in Stilling's anterior commissure. The fibers of the ascending anterolateral tract terminate in the lobulus lingualis (lobus lingulæ) of the cerebellum. The course of the fibers in the human subject corresponds exactly to that described in the lower animals by Mott, Tooth, and others.

Decussation of the Optic Nerves.—Though it is hardly necessary to adduce further proof of the partial decussation of the optic nerves in the chiasm, still it is interesting to note that v. Solder[3] has, by actual count, shown that there are considerably less fibers in the optic chiasm than in one optic tract and one optic nerve. If complete decussation occurred, a sagittal section through the median line of the chiasm should show the same number of fibers as there are in one optic tract and one nerve together.

Mode of Origin and Form of the Ventriculus Terminalis of the Spinal Cord.—P. Argutinsky[4] finds that the terminal ventricle of the cord is not to be regarded as a persistent portion of the originally larger embryonic neural canal, but as a cavity produced by a proliferation of the ependymal cells. This process, which occurs at a relatively late period in fetal life, is analogous to the changes occurring in the formation of pathologic cavities, as in syringomyelia.

Termination of the Descending Anterolateral Tract in the Spinal Cord.—E. A. Schaefer[5] has shown that the fibers of this tract end in the anterior horns of the cord, as arborizations around the ganglion cells.

The Neuron.—L. F. Baker[6] writes on this important subject, and comes to the conclusion "That the control instituted by hundreds of histologists in various parts of the world has gone to confirm the conception that the neuron is a unit in the sense of Waldeyer." A. Hoche,[7] on the contrary, believes that the neuron-theory can no longer be upheld.

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[1] Jour. Med. de Bruxelles, No. 42, 1898.
[2] Brain, 1898, Autumn. [3] Wien. klin. Woch., No. 44, 1898.
[4] Arch. f. mikroskop. Anat., lii., 3, p. 501, 1898.
[5] Jour. of Physiol., xxiv. [6] Amer. Jour. of Insanity, lv., 31.
[7] Centralbl. f. Nervenheilkunde u. Psychiatrie, xxii., 1899, p. 276.

MISCELLANEOUS.

Abstract of Remarks on the Brain of Pithecantropus Erectus.—Additional evidences as to the intermediate position of pithecantropus erectus between man and the anthropoid apes are recorded by Eugene Dubois.[1] A cast, as taken from the interior of the calvaria, gives to the brain of this species, when considered in proportion to the body size, 750 grams in weight, or twice that of anthropoids, and one-half that of man. The greatest width of the brain at the junction of its anterior three-fifths with its posterior two-fifths when associated with the forward displacement of the occipital condyles and the insertion of the sternocleidomastoid muscles, intimate the erect position of pithecantropus. That the faculty of speech was present to some extent seems to be indicated by the similarity of the inferior frontal convolution to that of man, its superficies being one-half that of Broca's region in man, but twice that of the corresponding part in the largest brains of anthropoids.

On the Condition Known as Epignathus.—In considering the causation of epignathus, B. C. A. Windle[2] advances the probability of the parasite originating from a small fragment of separated germ-plasm, capable of but partial development. Among certain of the lower invertebrates it is known that separate blastospheres develop either into a diminutive type of the species or into a fragment of the same, and the formation of the parasite he holds to be by a similar process. The source of the germ-plasm possessed with the limited potentiality might be sought for in a separated fragment of the ovum, the polar bodies, or spermatozoa.

Origin of the Coccygeal Body.—J. H. Jacobson[3] states that this body is probably developed from the sympathetic nerve. In a fetus 15 cm. in length the "Anlage" of the coccygeal body may be seen to be connected with the caudal extremity of the sympathetic nerve. The parenchymal cells are to be regarded as homologous with sympathetic ganglion cells.

Polydactylism and Atavism.—E. Boinet[4] has examined 17 cases of polydactylism (most of them cases of symmetric hexadactylism) by means of the Röntgen rays, and finds that the explanation of these anomalies is to be sought in dichotomy. No connection between the supernumerary digit and the pisiform bone was ever seen, and in 1 case of fusion of the thumb and index-finger, with complete absence of the other digits, the pisiform bone was quite normally developed. He argues, therefore, that polydactylism is not to be attributed to atavism. [K. v. Bardeleben regards polydactylism as atavistic, stating that there are rudiments of a "post-minimus" and "prepollex" in the human hand, and that the original hand was heptadactyl. As particularly insisted upon, however, by Baur and Wiedersheim, there is not a single paleontologic fact that would show that terrestrial animals ever had more than 5 digits in the hand or foot.]

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[1] J. of Anat. and Phys., Jan., 1899.

[2] Jour. of Anat. and Phys., Jan., 1899.

[3] Arch. f. mikroskop. Anat., liii., S. 78, 1898.

[4] Revue de Med., Paris, xviii., 4, p. 316, 1898.

Development and Structure of the Parathyroid Bodies.—L. Schreiber,[1] from his examination of these bodies in fetuses and adults, concludes that they are to be regarded as genetically independent organs, which probably arise in an epithelial thickening of the fourth branchial cleft, near the place of origin of the thyroid gland. Usually, they persist throughout life in an indifferent state, though under certain circumstances they may undergo colloid change.

The Macroscopic Structure of the Parotid.—The main formative branches of the Stensonian duct, according to F. Kermauner,[2] are the preauricular and postauricular rami of these respective lobes,—better defined in certain animals as the dog and sheep,—and which bear their relative positions to the notch in the gland formed by the external auditory meatus. The preauricular duct in man takes origin from that portion of the gland anterior to the auditory meatus, while the postauricular lobe is the glandular portion between the digastric and sternomastoid muscles. Into one or other of these ducts—or more commonly into the angle between the two—the auricular duct from that portion of the gland below the auditory meatus empties, resembling, as a whole, the appearance of the two common iliac and sacramedia arteries. The division of the facial nerve takes place, and is always to be found between these two rami. During its glandular course Stenson's duct receives branches both from the glandular portions above and below it, or the superior and inferior lobes, those of the latter being the more numerous. As a whole, these branches show a marked constancy, not only in man, but in the other animals (horse, dog, sheep, ox).

Anatomic Nomenclature.—At its latest meeting the Association of American Anatomists adopted the report of the Committee on Anatomic Nomenclature. This report cannot be given here in full. The following statement is taken from the records of the Association: (1) "Brief statement of reasons for preferring certain terms (about 50 in number) already adopted by the Association." (These relate to the anatomy of the central nervous system. (2) "Recommendation of *mesocœlia* as a name for the cavity of the mesencephalon, with reasons therefor." (3) "Recommendation of 181 names of bones (120) and muscles (61) identical with those in the B. N. A. (Basel Nomina Anatomica)." (4) "Recommendation of 17 names of bones and muscles differing from those of the B. N. A." The neural terms suggested by Prof. Wilder have been adopted by a number of American writers and investigators, though teachers of anatomy have not made use of them. In Germany Wilder's terms meet with little favor.

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[1] Arch. f. mikroskop. Anat., lii., 4, p. 707, 1898.

[2] Archiv f. klin. Chir., Band lix., viertes Heft, 1899, p. 805.

LARYNX.

Ossification of the Larynx.—Max Scheier[1] has examined the laryngeal cartilages by means of the Röntgen rays. He finds that ossification begins earlier than is usually believed, for the earliest traces can be seen in the nineteenth year. Ossification is seen first in the thyroid cartilage just above the inferior cornu, and extends upward; then the cricoid cartilage begins to ossify, and after this the arytenoids and trachea. In general it may be said that the older the individual is, the more marked is the ossification, though there are exceptions to this rule. Syphilis, tuberculosis, and other chronic inflammatory processes do not seem to influence the change, nor could he find that there were any differences in the larynges of singers whom he examined.

Anatomy of the Infantile Larynx.—D. Galatti[2] describes the peculiarities of the child's larynx. In the first year of life the body of the hyoid bone lies very close to the thyroid cartilage, in fact, overlaps it, so that the thyrohyoid ligament is not visible. The 2 lateral parts of the thyroid cartilage form a semicircle. The cricoid cartilage occupies a high position, and the plate is directed obliquely from below upward and backward. The arytenoids are relatively more massive than in the adult. The upper portion of the cavity of the larynx is more irregular, owing to the greater projection of the cartilages into it. The true vocal cords are both absolutely and relatively much shorter than in the adult, and the entrance to the sinus of Morgagni (ventricle of the larynx) is relatively small. The narrowest portion of the laryngo-tracheal tube is the opening of the cricoid cartilage. At the sixth year the thyrohyoid ligament can be plainly seen, the hyoid bone having by this time become separated more from the thyroid cartilage.

Lymph-vessels and Glands of the Larynx.—Most[3] has examined the lymphatic channels of the larynx by means of Gerota's injection method. As in other situations, it appears that the vessels are more numerous and larger where the mucosa is thickest. On the true cords the lymphatics are least abundant. The lymph-vessels coming from the area above the true vocal cords form from 3 to 6 trunks, which pass laterally through the thyrohyoid membrane, and enter glands which lie about the bifurcation of the common carotid artery and on the internal jugular vein, though occasionally they enter higher or lower glands. The lymph-channels from the mucosa below the true cords pass through the cricothyroid membrane and enter a small gland situated in the median line in front of the cricoid cartilage, occasionally one below the isthmus of the thyroid gland, as well as glands about the thyroid gland and along the side of the trachea as far as the sternum.

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[1] Arch. de Laryngol., 1898.

[2] Wien. klin. Woch., xii., 7, 1899.

[3] Anat. Anz., xv., 21, 1899.

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